VSP 628PRO

User Manual

- Manual #: RGB-RD-UM-V628PRO E001
- Revision: V1.7
- This User Manual Applies to VSP 628PRO Series!

RGBlink

VSP 628PRO·User Manual

Thank you for choosing our products!
In order to allow you to learn how to use the video processor quickly, we bring you the detailed user manual. You can read the introduction and directions before using the video processor, please read all the information we provide carefully to use our products correctly.

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Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Terms In This Manual and Equipment Marking

WARNING

Highlights an operating procedure, practice, condition, statement, etc, which, if not strictly observed, could result in injury or death of personnel.

Note

Highlights an essential operating procedure, condition or statement.

CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Change History

The table below lists the changes to the Video Processor User Manual.

Format	Time	ECO#	Description	Principal
V1.0	2014-12-02	0000#	Release	Vira
V1.1	2015-04-27	0001#	1. Add the input optional module. 2. Update the menu tree. 3. Update the windows control program.	Vira
V1.2	2015-06-08	0002#	1. Add the input optional module. 2. Update the menu tree. 3. Update the windows control program. 4. Update the common questions and solutions.	Vira
V1.3	2015-07-17	0003#	Add “Optional Module Installation and Replacement Instruction”	Vira
V1.4	2015-07-27	0004#	1. Update the menu tree. 2. Update the windows control program. 3. Update the specification.	Vira
V1.5	2015-08-17	0005#	1. Update the company logo. 2. Update the split instruction. 3. Update the common questions and solutions.	Vira
V1.6	2015-09-25	0006#	1. Update the diagram. 2. Update the menu tree. 3. Update the windows control program.	Vira
V1.7	2015-10-16	0007#	1. Update the windows control program. 2. Update the “Software Upgrade”.	Vira

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1. Introduction

This chapter is designed to introduce you to the VSP 628PRO User Manual. Areas to be covered are:

- Chapter Structure
- How to Use This Manual
- Terms and Definitions
- System Overview
- Application Questions

Chapter Structure

The following chapters provide instructions for all aspects of VSP 628PRO operations.

Chapter 1 Introduction

Chapter 2 Hardware Orientation

Chapter 3 Hardware Installation

Chapter 4 Menu Orientation

Chapter 5 Communication Software Guideline

Chapter 6 System Setup and Operations

Chapter 7 Common Questions and Solution

Appendix A Specification

Appendix B Contact Information

Appendix C Software Upgrade

Appendix D WEB SERVER Cross-platform Control Operation Interface

Appendix E VSP 628PRO Connect APP Control Operation

Appendix F Optional Module Installation and Replacement Instruction

How to Use This Manual

Following are important tips for streamlining your use of this User Manual in its electronic “PDF” form.

Navigating

Use Acrobat Reader’s “bookmarks” to navigate to the desired location. All chapter files have the same bookmark structure for instant navigation to any section. Please note:

- Extensive hyperlinks are provided within the chapters.
- Use Acrobat’s “**Go to Previous View**” and “**Return to next View**” buttons to trace your complete navigational path.

- Use the “**Previous Page**” and “**Next Page**” buttons to go to the previous or next page within a file.
- Use Acrobat’s extensive search capabilities, such as the “**Find**” tool and “**Search Index**” tool to perform comprehensive searches as required.

Table of Contents and Index

Use the Table of Contents bookmarks to navigate a desired topic. Click any item to instantly jump to that section of the guide. You can also use the **Index** to jump to specific topics within a chapter. Each page number in the **Index** is a hyperlink.

General Operations

To ensure trouble-free operation, please follow all procedures as listed below:

- For detailed installation instructions, refer to chapter 3 “Hardware Installation” on page 38.
- For communication software control guide, refer to Chapter 5, “Communication Software Control Guide” on page 55.
- For system setup and operations, refer to Chapter 6, “System Setup and Operations” on page 70.

Should you have any questions regarding the installation or operation of VSP 628PRO, please consult with the factory. Refer to Appendix B, “Contact information” on page 104.

Terms and Definitions

The following terms and definitions are used throughout this guide.

- **“ASCII”:** American Standard for Information Interchange. The standard code consisting of 7-bit coded characters (8 bits including parity check) used to exchange information between data processing systems, data communication systems, and associated equipment. The ASCII set contains control characters and graphic characters.
- **“Aspect ratio”:** The relationship of the horizontal dimension to the vertical dimension of an image. In viewing screens, standard TV is 4:3, or 1.33:1; HDTV is 16:9, or 1.78:1. Sometimes the “:1” is implicit, making TV = 1.33 and HDTV = 1.78.
- **“AV”:** Audio visual, or audio video.
- A **“Background”** is an unscaled source, typically originating from a computer. A background source appears at the system’s lowest priority — visually in back of all other sources.
- **“Baudrate”:** Named of J.M.E. Baudot, the inventor of the Baudot telegraph code. The number of the electrical oscillations per second, called baud rate. Related to, but not the same as, transfer rate in bits per second (bps).
- **“Blackburst”:** The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the chroma burst information. Blackburst is used to synchronize video equipment to align the video output. One signal is normally used to set up an entire video system or facility. Sometimes it is called House sync.
- **“BNC”:** Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventors. A cylindrical bayonet connector that operates with a twist-locking motion. To make the connection, align the two curved grooves in the collar of the male connector with the two projections on the outside of the female collar, push, and twist. This allows the connector to lock into place without tools.
- **“Brightness”:** Usually refers to the amount or intensity of video light produced on a screen without regard to color. Sometimes called “black level.
- “**CAT 5**”**:** Category 5. Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps. CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.
- **“Color bars”:** A standard test pattern of several basic colors (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly

used color bars are the SMPTE standard color bars. In PAL video, the most commonly used color bars are eight full field bars. In the computer, the most commonly used color bars are two rows of reversed color bars.

- **"Color burst":** In color TV systems, a burst of subcarrier frequency located on the back porch of the composite video signal. This serves as a color synchronizing signal to establish a frequency and phase reference for the chroma signal. Color burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.
- **"Color temperature":** The color quality, expressed in degrees Kelvin(K), of a light source. The higher the color temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark color temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.
- **"Contrast ratio":** The radio of the high light output level divided by the low light output level. In theory, the contrast radio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. In the CRT, light from adjacent elements contaminate the area of each element. Room ambient light will contaminate the light emitted from the CRT. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.
- **"DVI":** Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.
- **"EDID":** Extended Display Identification Data – EDID is a data structure used to communicate video display information, including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the optimal video format for the display based on the provided EDID data, ensuring proper video image quality. This communication takes place over the DDC – Display Data Channel.
- **"Ethernet":** A Local Area Network (LAN) standard officially known as IEEE 802.3. Ethernet and other LAN technologies are used for interconnecting computers, printers, workstations, terminals, servers, etc. within the same building or campus. Ethernet operates over twisted pair and over coaxial cable at speeds starting at 10Mbps. For LAN interconnectivity, Ethernet is physical link and data link protocol reflecting the two lowest layers of the OSI Reference Model.
- **"Frame":** In interlaced video, a frame is one complete picture. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still picture of a series that makes up a motion picture.

- **"Gamma":** The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.
- **"HDMI" - High – Definition Multimedia Interface:** An interface used primarily in consumer electronics for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable. HDMI is the de facto standard for HDTV displays, Blu-ray Disc players, and other HDTV electronics. Introduced in 2003, the HDMI specification has gone through several revisions.
- **"HDSDI":** The high-definition version of SDI specified in SMPTE-292M. This signal standard transmits audio and video with 10 bit depth and 4:2:2 color quantization over a single coaxial cable with a data rate of 1.485 Gbit/second. Multiple video resolutions exists including progressive 1280x720 and interlaced 1920x1080 resolution. Up to 32 audio signals are carried in the ancillary data.
- **"JPEG" (Joint photographic Expects Group):** Commonly used method of lossy compression for photographic images using a discreet cosine transfer function. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG typically achieves 10:1 compression with little perceptible loss in image quality. Produces blocking artifacts.
- **"MPEG":** Motion Picture Expect Group. A standard committee under the auspices of the International Standards Organization working on algorithm standards that allow digital compression, storage and transmission of moving image information such as motion video, CD-quality audio, and control data at CD-ROM bandwidth. The MPEG algorithm provides inter-frame compression of video images and can have an effective compression rate of 100:1 to 200:1.
- **"NTSC":** The color video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. A color signal must be compatible with black-and-white TV sets. NTSC utilizes an interlaced video signals, 525 lines of resolution with a refresh rate of 60 fields per second (60 Hz). Each frame is comprised of two fields of 262.5 lines each, running at an effective rate of 30 frames per second.
- **"Operator":** Refers to the person who uses the system.
- **"PAL":** Phase Alternate Line. A television standard in which the phase of the color carrier is alternated from line to line. It takes four full pictures (8 fields) for the color-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, in many transmission forms, is widely used in Western Europe,

Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-filed (25 fps) composite color transmission system.

- **"PIP":** Picture-in-Picture. A small picture within a larger picture created by scaling down one of the images to make it smaller. Each picture requires a separate video source such as a camera, VCR, or computer. Other forms of PIP displays include Picture-by-Picture (PBP) and Picture-with-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.
- **"Polarity":** The positive and negative orientation of a signal. Polarity usually refers to the direction or a level with respect to a reference (e.g. positive sync polarity means that sync occurs when the signal is going in the positive direction).
- **"RJ-45":** Registered Jack-45. A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.
- "**RS-232":** An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors. This standard is used for relatively short-range communication and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length, and type of connector to be used. The standard specifies component connection standards with regard to the computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard.
- **"Saturation":** Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with the brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color. For example, a low-saturated red looks pink.
- **"Scaling":** A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.
- **"SDI":** Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of (embedded) digital audio.
- **"Seamless Switching":** A feature found on many video switchers. This

feature causes the switcher to wait until the vertical interval to switch. This avoid a glitch (temporary scrambling) which normally is seen when switching between sources.

- **"SMPTE":** Society of Motion Picture and Television Engineers. A global organization, based in the United States, that sets standards for baseband visual communications. This includes film as well as video and television standards.
- **"S-Video":** A composite video signal separated into the luma ("Y" is for luma, or black and white information; brightness) and the chroma ("C" is an abbreviation for chroma, or color information).
- **"Sync":** Synchronization. In video, sync is a means of controlling the timing of an event with respect to other events. This is accomplished with timing pulses to insure that each step in a process occurs at the correct time. For example, horizontal sync determines exactly when to begin each horizontal scan line. Vertical sync determines when the image is to be refreshed to start a new field or frame. There are many other types of sync in video system.(Also known as "sync signal" or "sync pulse.")
- **"TCP/IP":** Transmission Control Protocol/Internet Protocol. The communication protocol of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.
- **"USB":** Universal Serial Bus. USB was developed by seven PC and telecom industry leaders (Compaq, DEC, IBM, Intel, Microsoft, NEC, and Northern Telecom). The goal was easy plug-and-play expansion outside the box, requiring no additional circuit cards. Up to 127 external computer devices may be added through a USB hub, which may be conveniently located in a keyboard or monitor. USB devices can be attached or detached without removing computer power. The number of devices being designed for USB continues to grow, from keyboards, mice, and printers to scanners, digital cameras, and ZIP drives.
- **"VESA":** Video Electronics Standards Association. A nonprofit number organization dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. www.vesa.org
- **"VGA":** Video Graphics Array. Introduced by IBM in 1987, VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15-pin HD connector and has a horizontal scan frequency of 31.5 kHz and vertical frequency of 70 Hz (Mode 1, 2) and 60 Hz (Mode 3). The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using the 8514/A card (35.5 kHz, 86 Hz) in mode 4. It

has a pixel by line resolution of 640×480 with a color palette of 16 bits and 256,000 colors.

- **“YCrCb”:** Used to describe the color space for interlaced component video.
- **“YPbPr”:** Used to describe the color space for progressive-scan (non-interlaced) component video.

System Overview

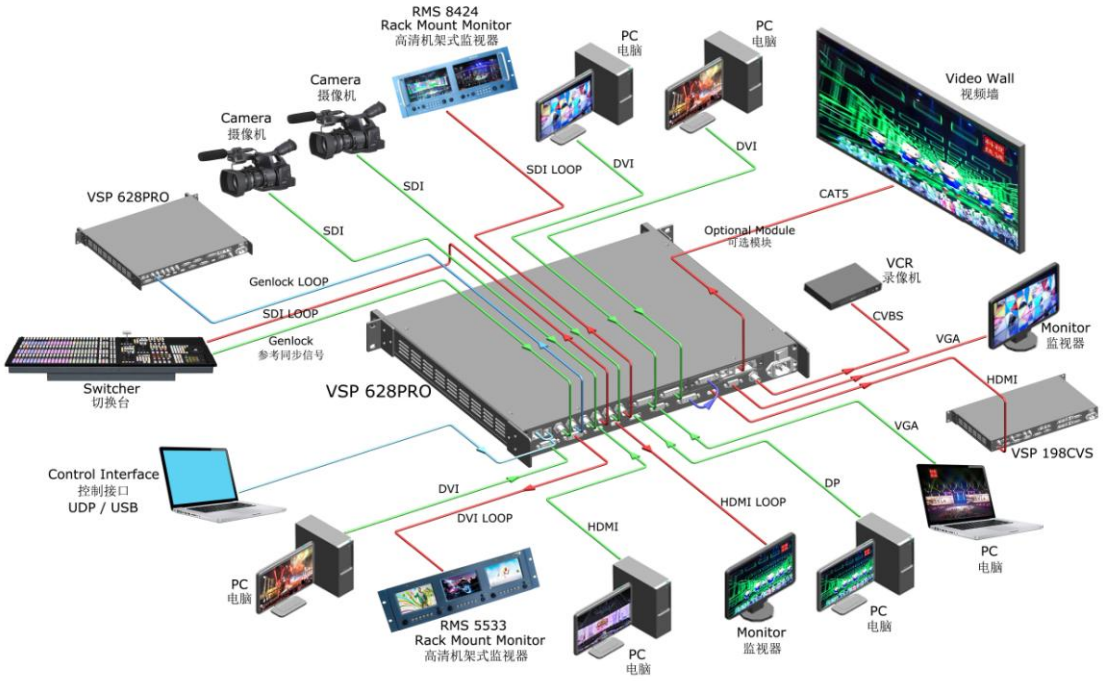
VSP 628PRO is an advanced high performance all-in-one video scaler, scan converter, switcher and transcoder converting any input signal format to any output signal format.

VSP 628PRO supports composite, component, VGA, DVI signal and dual link, HDMI, DisplayPort, USB, CVBS and SD/HD/3G-SDI signal formats. Loop-through outputs are provided for the DVI and SDI input and Genlock signals. With features like LOGO capture and standard test pattern built in, 3D processing, HDCP and EDID management, Web page control interface seamless switching between the inputs, VSP 628PRO is one of the most advanced and flexible signal processor in the industry.

VSP 628PRO is based on module based structure, its standard version comes with all the features you need and expect to find in old versions. In addition to the standard features, with different modules, you can reach more possibility and application range.

Application Questions

RGBlink offers solutions to demanding technical problems. Any application questions, or required further information, please contact with our Customer Support Engineers. Refer to Appendix B for contact details.



2. Hardware Orientation

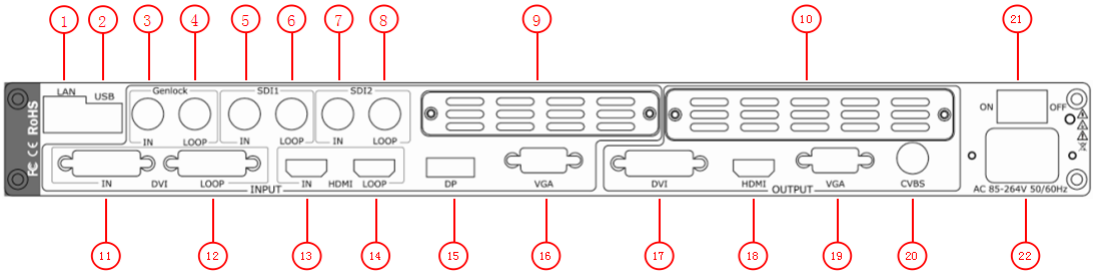
In This Chapter

This chapter provides detailed information about the VSP 628PRO hardware. The following topics are discussed:

- VSP 628PRO Back Panel
- VSP 628PRO Front Panel

VSP 628PRO Back Panel

The figure below illustrates the professional interface and control signals of VSP 628PRO back panel.



NO	INTERFACE	NO	INTERFACE
1	10/100M Interface	13	HDMI Input
2	USB Interface	14	HDMI Loop Out
3	Genlock Input	15	DP Input
4	Genlock Loop Out	16	VGA Input DB15 Port
5.7	3G-SDI Input	17	DVI Output
6.8	3G-SDI Loop Out	18	HDMI Output
9	Optional Module Slots	19	VGA Output
10	Optional Module/Sending Card Interface	20	CVBS Output (OC Optional Module)
11	DVI Input	21	Illuminated Power Switch
12	DVI Loop Out	22	Power IEC-3 Port

CONT Interface

1: 10/100M UDP Interface

Used to connect the windows control program.

2: USB Interface

Used to connect the windows control program or device upgrade.

2. Hardware Orientation

VSP 628PRO Back Panel

INPUT Interface

It includes 1 Genlock input by BNC interfaces, 2 3G-SDI inputs, 1 DVI-D input, 1 HDMI input, 1 VGA input by DB15 interface, and 1 DP input. Can realize all the inputs (except VGA, DP) loop out.

3：Genlock Input

Genlock input, input video synchronization signal from controller or signal generator, etc.

5. 7：3G-SDI Input

3G-SDI input, input video signal from HD camera and radio processing equipment, connect SDI interface via 75 ohms impedance BNC port.

11: DVI Input

DVI input, input the video signal from computer, DVI signal generator. If the EDID is HDMI, the DVI can be compatible with HDMI 1.3.

(This connector does not support hot-plugging)

13: HDMI Input

HDMI input interface, input the image signal from computer.

15: DP Input

DP input, input the video signal from HD player, computer.

16: VGA Input

VGA input, input the video signal from HD player and computer, etc. compatible with YPbPr signal, input signal via the DB15 interface.

Note

User need to use the VGA to YPbPr adapter

to input YPbPr signal.

4：Genlock Loop Out

Genlock loop out, connect to the Genlock input of the next VSP 628PRO or the device with Genlock input.

6. 8: 3G-SDI Loop Out

SDI loop out, connect to the SDI input of the next VSP 628PRO or the device with SDI input.

12：DVI Loop Out

DVI loop out, connect to the DVI input of the next VSP 628PRO or the device with DVI input.

14：HDMI Loop Out

HDMI loop out, connect to the HDMI input of the next VSP 628PRO or the device with HDMI input.

OUTPUT Interface

17: DVI Output

Connect to the monitor or LED display which has DVI interface.

(This connector does not support hotplug).

18: HDMI Output

HDMI output interface, used to connect to the display device, video processor or matrix.

19: VGA Output

Connect to the monitor or LED display which has VGA interface.

(This connector does not support hotplug).

20：CVBS Output (OC Optional Module)

CVBS can output PAL and NTSC, output signal can access to the TV, etc.

Illuminated Power Switch and Power

21. 22: Power Interface and Illuminated Power Switch

AC 85-264V, 3.8A , 50/60Hz, IEC-3 power Interface.

Optional Module

9: Optional Module Slots

Compatible with SDI, VGA, DVI, HDMI, USB or CVBS optional module. SDI optional module includes 2 3G-SDI input and 2 SDI loop outs. VGA optional module includes 2 VGA input (DB15port), DVI optional module includes 2 DVI-D (compatible with HDMI) input, HDMI optional module includes 2 HDMI input, USB optional module includes 2 USB input, CVBS optional module includes 2 CVBS input, HDMI_DP_4K2K_IN optional module includes 1 DP 1.2 input, 1 DP 1.2 loop out and 1 HDMI 1.4 input.

3G-SDI Input (S Optional Module): Input video signal from HD camera and radio processing equipment, connect SDI interface via 75 ohms impedance BNC port.

3G-SDI Loop Out (S Optional Module): Connect to the SDI input of the next VSP 628PRO or the device with SDI input.

VGA Input (V Optional Module): Input the video signal from HD player and computer, etc. input signal via the DB15 interface.

DVI Input (D Optional Module): Input the video signal from computer, DVI signal generator. Connect to the same DVI interface on VSP 628PRO. (This connector does not support hot-plugging).

HDMI Input (H Optional Module): Input the image signal from computer.

USB Input (U Optional Module): Can access the USB device or mobile hard disk with USB storage function. Support general image and video

formats.

CVBS Input (C Optional Module): Input standard video signal from players, cameras etc.

DP 1.2 Input (HDMI_DP_4K2K_IN Optional Module): Input the video signal from HD player, computer.

DP 1.2 Loop Out (HDMI_DP_4K2K_IN Optional Module): Connect to the DP 1.2 input of the next VSP 628PRO or the device with DP 1.2 input.

HDMI 1.4 Input (HDMI_DP_4K2K_IN Optional Module): Input the image signal from computer.

10: Optional Module/Sending Card Interface

Compatible with Fiber, SDI optional module or sending card interface. F optional module includes 1 fiber output, 1 3G-SDI output and 1 HDBaseT output. SDI optional module includes 2 3G-SDI output.

Fiber Output (F Optional Module): LC interface, use single mode twin-core fiber or multimode twin-core fiber. Connect one end of the fiber cable to LC interface, and the other end to fiber input interface of MSP 214 extender or other device. (User need to use SFP module when connect LC interface, customers are advised to purchase the SFP module as we will not provide it)

3G-SDI Output (F Optional Module): Connect to the device with 3G-SDI input.

HDBaseT Output (F Optional Module): RJ45 interface. Connect one end of the CAT5e or CAT6 cable to RJ45 interface, and the other end to HDBaseT input interface of MSP 215 extender or other device.

SDI Output (OS2 Optional Module): Connect to the device with SDI input.

Sending Card Interface: Support the sending card installation and power supply, include Linsn TS 802, Colorlight IT7e and NOVA MSD300. For

NOVA MSD300, it needs the special module to adjust the sending card brightness via the menus on OLED screen, and we will release this module later.

For more details about the input/output numbers, supported resolutions, signal level, format standard, etc, please refer to Specification part.

Interface Protection Block

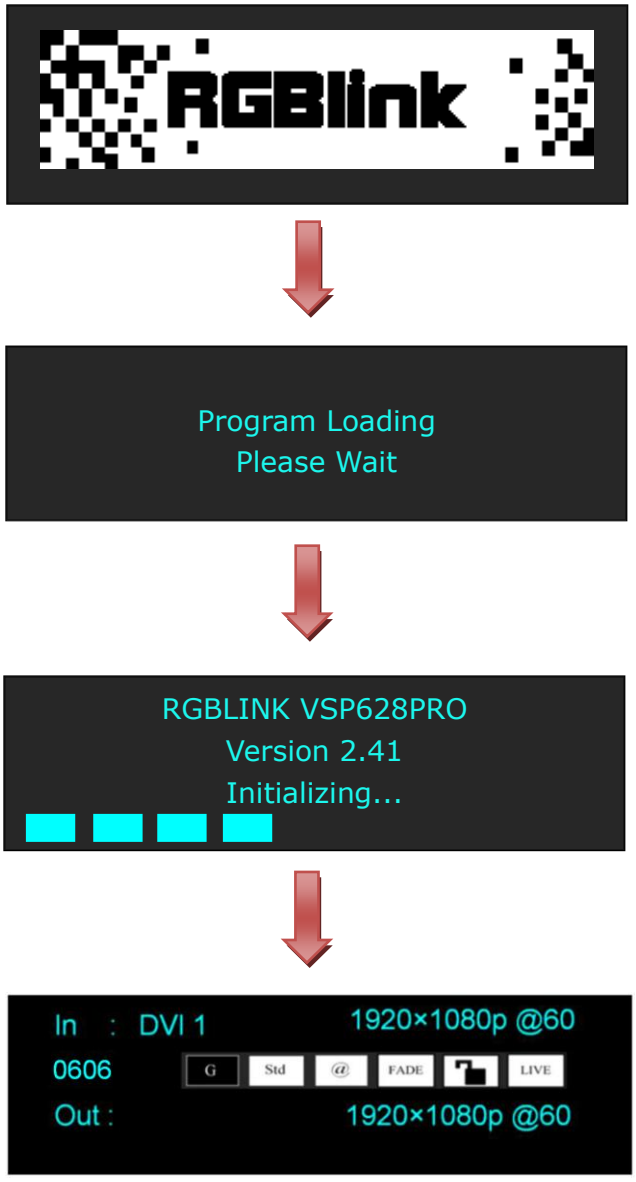
We equip the interface protection blocks on both sides of the back panel, the purpose are as follows:

1. Protect the interfaces, it avoids the interface damage that may caused if the back panel hits the ground.
2. Tie the input and output cables, to avoid the cables loose by the external touch, which may cause signal interrupt. The tie method shown as follows:

VSP 628PRO Front Panel

Insert power cord and push power to ON position. OLED module on the front panel will show RGBLINK and go into self verification before it load last setting config and send processed image to the target monitor. For the first setup, system default DVI1 input signal. User can operate VSP 628PRO through the menus on the OLED panel.

VSP 628PRO front panel as shown in figure:



2. Hardware Orientation

VSP 628PRO Front Panel

Note:

In: DVI1 1920×1080p@60--System default DVI1, the current input format is 1920×1080p@60. If show 1920×1080p@60#, it means custom formats is available.

0606--The serial number is 0606.

: Disable the genlock function.

: Standard mode.

: Enable the ethernet function.

: Fade in fade out.

: Unlock state.

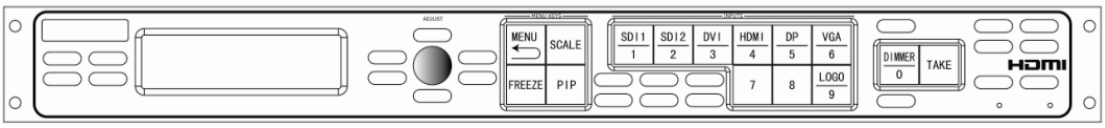
: Live video.

Out: 1920×1080p@60--The current output format is 1920×1080@60. If show 1920×1080p@60#, it means custom formats is available.

2. Hardware Orientation

VSP 628PRO Front Panel

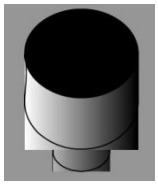
VSP 628PRO front panel as following:



OLED Panel

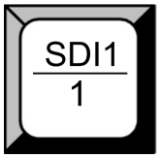
Used to show button menu and menus for interactive communication.

Menu Buttons

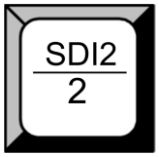


Used to adjust OLED menu and information interaction and with the same function with enter to confirm current options.

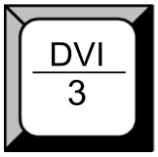
Signal keys



SDI1 input selection button, its LED light turns on, output will be switched to this channel.

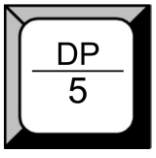


SDI2 input selection button, its LED light turns on, output will be switched to this channel.



DVI input selection button, its LED light turns on, output will be switched to this channel.

HDMI input selection button, its LED light turns on, output will be switched to this channel.

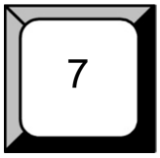


DP input selection button, its LED light turns on, output will be switched to this channel.

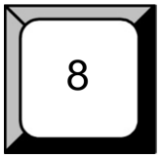
2. Hardware Orientation

VSP 628PRO Front Panel

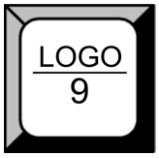
VGA or YPbPr input selection button, its LED light turns on, output will be switched to this channel.



Optional module input selection button 7, push the button, its LED light is on, output will be switched to optional module channel 1. Support signals include: SDI3, VGA2, DVI2, HDMI2, USB1, CVBS1 and DP1.2.

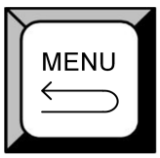


Optional module input selection button 8, push the button, its LED light is on, output will be switched to optional module channel 2. Support signals include: SDI4, VGA3, DVI3, HDMI3, USB2, CVBS2 and HDMI1.4.



Test pattern adjustment button, push the button, and enter the test pattern menus, user can choose the type, or enable the raster box, diag motion and AOI raster box function.

Function



Menu and exit function reuse key. Push the button to enter to the menu items, turn the knob to choose the menu and push the knob to confirm. Push the button again to return to the last level menu or exit the menu.

In addition, push the button for 3 seconds can lock panel.

For more details, please refer to MENU part.

Size and position setting button. Push the button, user can set the H size, V size, H POS and V POS.

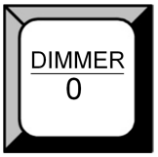
In addition, push the MENU and SCALE button for 3 seconds can switch the language.

2. Hardware Orientation

VSP 628PRO Front Panel

Freeze button, push the button, its LED light lights, and the current image is freeze. Push the button again, its LED light is off, and disable the freeze function.

Single image and double images switch button. Push the button, user can switch the mode between single image and picture in picture. It is reuse DSK shortkey when enable the DSK function.



Dimmer adjust button, push the button, its LED light turns on, and enable the dimmer function, the adjustment range is among 0~100. User can also choose effects and set the brightness, contrast and so on. User can also choose CHA or CHB by pushing the [DIMMER/0] button.

Seamless effect switch, push the button, the preview signal will be switched to program output.

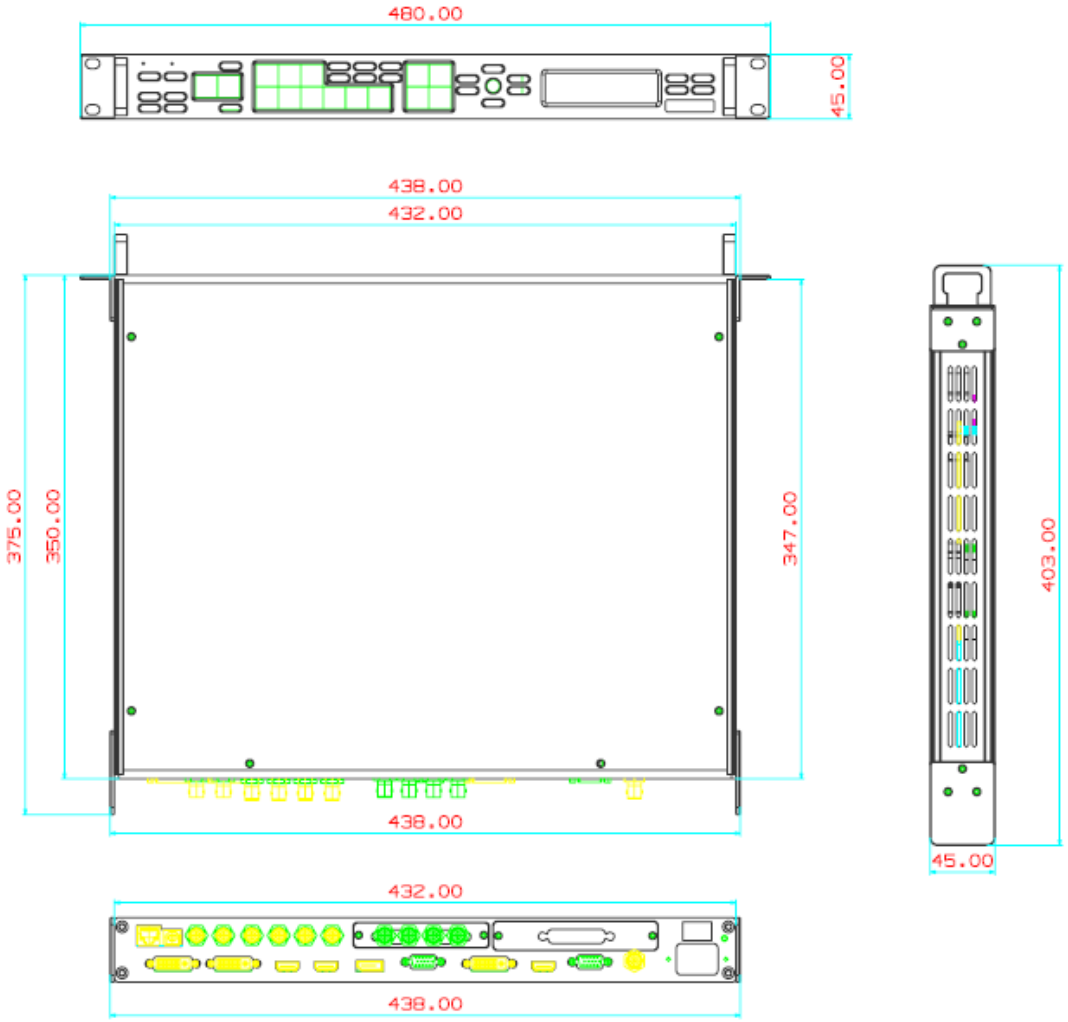
Load reuse button, except in switcher mode.

3. Hardware Installation

In This Chapter

This chapter provides comprehensive installation instruction for VSP 628PRO hardware:

Following is the size of VSP 628PRO for your reference.



Safety Precautions

For all VSP 628PRO processor installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.

- To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord.
- The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening VSP 628PRO processor shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your VSP 628PRO should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

4. Menu Orientation

In This Chapter

This chapter describes all VSP 628PRO processor menus, including how they are accessed, the functions that are available, and descriptions of each menu tree (in block diagram format).

The following topics are discussed:

- **MENU**
  - Input
  - Output
  - Custom Formats
  - Views
  - Transition
  - System
  - Logo
  - Display Setup
  - Test Pattern
  - Tech Support
  - Factory Reset

4. Menu Orientation

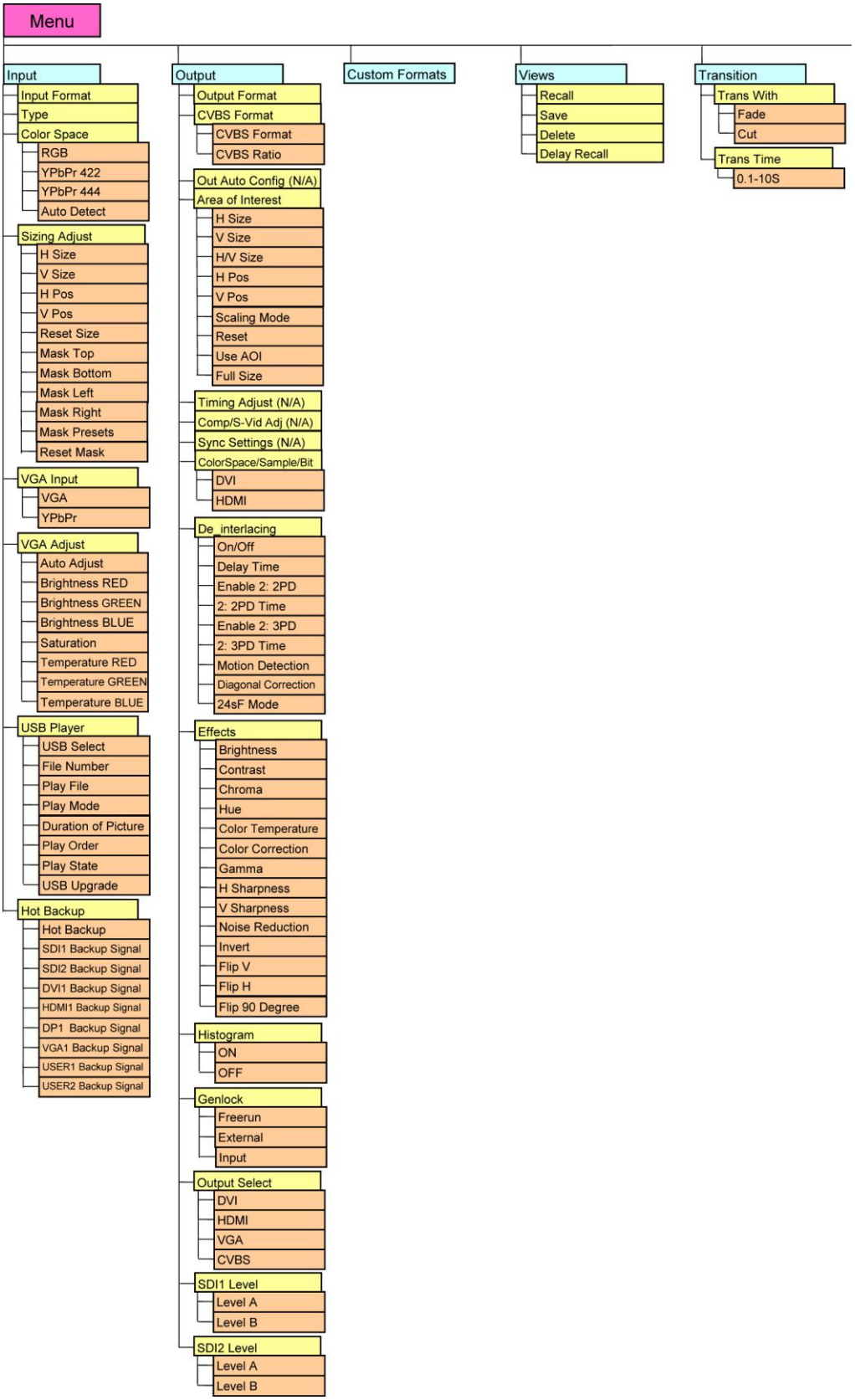
Menu

MENU

Push the [MENU] button to enter the menu items, shown as below: Turn the knob to select menu items. -> before the menu means it is in selected state. Push the knob to enter corresponding setting or view the menu.

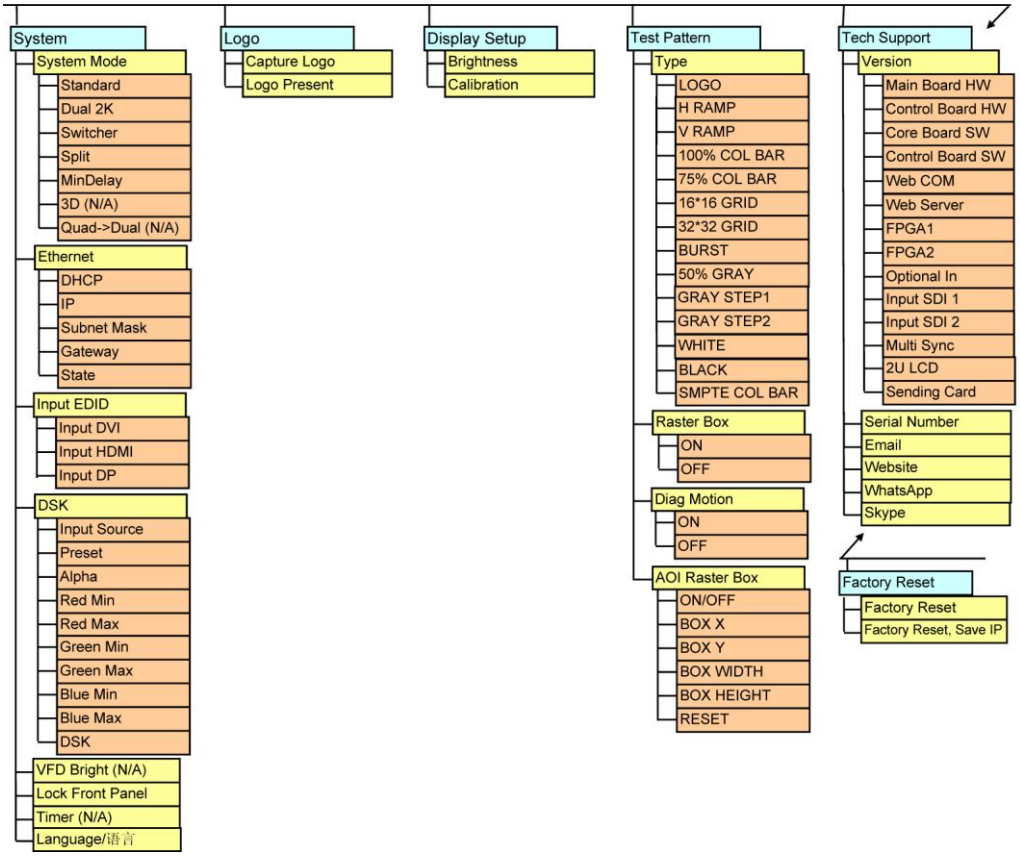
4. Menu Orientation

Menu



4. Menu Orientation

Menu



Input

Push the [MENU] button, OLED shows the menu, turn the knob and select <Input>, push the knob to confirm, show level 2 menu as follows:

Input Format: Show the current input video signal (such as SDI1) and the corresponding resolution (such as 720 x576x50i). Genlock input support input resolutions including 480i, 576i, 1080i59.94, 1080i50, 720p50, 720p59.94, 1080p50, 1080p59.94, 1080p60, 1080psf23.98, 1080psf24.

Type: The input type is DVI1.

Color Space: Set the color space as RGB, YPbPr 422, YPbPr 444 and Auto Detect.

Sizing Adjust: Settings including as follows:

H Size: The image width setting.

V Size: The image height setting.

H Pos: Horizontal phase setting.

V Pos: Vertical phase setting.

Reset Size: If image quality distorts by improper operation, it can be recover by reset size.

Mask Top: Mask the top of the image.

Mask Bottom: Mask the bottom of the image.

Mask Left: Mask the left of the image.

Mask Right: Mask the right of the image.

Mask Presets: Choose the mask presets, including 16:9, 5:4, 4:3, 3:2 or 1:1.

Reset Mask: If image quality distorts by improper operation, it can be recover by reset mask.

VGA Input: User can choose VGA input or YPbPr input.

VGA Adjust: Adjust VGA input signal, VSP 628PRO support auto adjust VGA input signal include H POS, V POS, CLOCK, PHASE, auto adjust to display in full screen image.

Note

Comments customers to use this operation in adjusting the VGA input shiftment.

Brightness RED: It can change the image brightness via Brightness RED setting.

Brightness GREEN: It can change the image brightness via Brightness GRN setting.

Brightness BLUE: It can change the image brightness via Brightness BLUE setting.

Saturation: It can change the image saturation via Saturation setting.

Temperature RED: It can change the image color red via this setting.

Temperature GREEN: It can change the image color green via this setting.

Temperature BLUE: It can change the image color blue via this setting.

USB Player: Sub menu as follows:

USB Select: Can choose USB1or USB2.

4. Menu Orientation

Menu

File Number: Choose the file number that will play.

Play File: Choose the file that will play.

Play Mode: Can choose picture or video.

Duration of Picture: Set the time of duration of picture.

Play Order: Can choose Repeat All, Shuffle, Order, Single Cycle and Single Track.

Play State: Can choose play or pause.

Hot Backup: User can enable or disable the hot backup function. Choose “ON” to set the backup signal. It will switch to the backup signal if interrupt signal. System default switch to the next signal.

Output

Push the [MENU] button, OLED shows the menu, turn the knob and select <Output>, push the knob to confirm, show level 2 menu as follows:

Output Format: Show the output resolution, there are 70 kinds of common resolutions, show as follows:

NTSC(480i)1440, 720×480p, PAL(576i)1440, 720×576p, 640X480@60, 640X480@75, 640X480@85, 800X600@50, 800X600@60, 800X600@75, 800X600@85, 1024X768@50, 1024X768@60, 1024X768@75, 1024X768@85, 1152X864@75, 1280X720p@23.98, 1280X720p@24, 1280X720p@25, 1280X720p@29.97, 1280X720p@30, 1280X720p@50, 1280X720p@59.94, 1280X720p@60, 1280X768@60, 1280X768@75, 1280X800@50, 1280X800@60, 1280X960@50, 1280X960@60, 1280X960@85, 1280X1024@50, 1280X1024@60, 1280X1024@75, 1280X1024@85, 1360X768@60, 1366X768@60, 1400X1050@50, 1400X1050@60, 1400X1050@75, 1440X900@60, 1440X900@75, 1440X900@85, 1600X1200@50, 1600X1200@60, 1680X1050@60, 1920X1080p@23.98, 1920X1080p@24, 1920X1080p@25, 1920X1080p@29.97, 1920X1080p@30, 1920X1080p@50,

4. Menu Orientation

Menu

1920X1080p@59.94, 1920X1080p@60, 1920X1080PsF@23.98, 1920X1080PsF@24, 1920X1080PsF@25, 1920X1080PsF@29.97, 1920X1080PsF@30, 1920X1080i@50, 1920X1080i@59.94, 1920X1080i@60, 1920X1200p@50, 1920X1200p@60, 2048X1152p@60, 2560X816p@60, 1536X1536p@60, NTSC(480i)2880, PAL(576i)2880, 1920X1080@60.0 (Custom).

CVBS Format: Settings including as follows:

CVBS Format: Can choose PAL or NTSC format.

CVBS Ratio: Can choose 4:3 or 16:9.

Area of Interest: Settings including as follows:

H Size: Width setting.

V Size: Height setting.

H/V Size: Zoom by the aspect of output resolution.

H Pos: Horizontal phase setting.

V Pos: Vertical phase setting.

Scaling Mode: Choose the scaling modes, including FULL, Same With Input, 3:2, 4:3, 5:4 and 16:9.

Reset: If image quality distorts by improper operation, it can be recover by reset.

Use AOI: User can choose use AOI or not.

Full Size: User can set the image as full size.

Color Space/Sample/Bit: DVI and HDMI setting, the operations are as follows:

DV/HDMI: Can select HDMI agreement or DVI, system default is DVI output.

Bit Depth: Bit depth setting, system default DVI 8 bit for DVI signal, user don’t need to set it. System default HDMI 10 bit, and user can choose 8 bit or 12 bit.

Color Space: Can choose image or video. Image adjust range is between

0~255, and video adjust range from 16~235.

De-interlacing: Force deinterlace function, settings including as follows:

ON/OFF: Can choose “ON” or “OFF”. When choose “ON”, force interlace for interlaced signal with effects switching for progressive signal. When choose “OFF”, no deinterlace.

Delay Time: Can set short pr long.

2:2PD: Enable or disable the 2:2PD function.

2:2PD Time: 2:2PD Time setting, the adjustment range is 0~15.

2:3PD: Enable or disable the 2:3PD function.

2:3PD Time: 2:3PD Time setting, the adjustment range is 0~15.

Motion Detection: The adjustment range is Level 1~Level 5.

Diagonal Correction: The adjustment range is 0~3.

24sF Mode: Enable or disable the 24sF function.

Effects: Settings including as follows:

Brightness: Set the Brightness, Brightness RED, Brightness GREEN and Brightness BLUE of the image.

Contrast: Set the Contrast, Contrast RED, Contrast GREEN and Contrast BLUE of the image.

Chroma: Set the Chroma, Y, U, V.

Hue: Hue setting, the adjustment value range is -180~180.

Color Temperature: Depth of processing for the image color, can set 3200K, 6500K or 9300K.

Color Correction: Blue, green and skin color correction.

Gamma: Gamma setting, items including 1, 1.1, 1.2, 1.3, 1.4,1.5, 1.6.

H Sharpness: H sharpness setting can change the image edge sharpening processing, the adjustment value range is -10~10.

V Sharpness: V sharpness setting can change the image edge sharpening processing, the adjustment value range is -10~10.

Noise Reduction: Settings including Horizontal NR, Vertical NR, Temporal

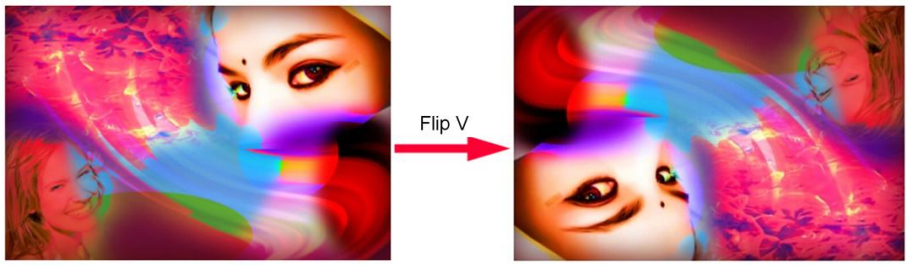
4. Menu Orientation

Menu

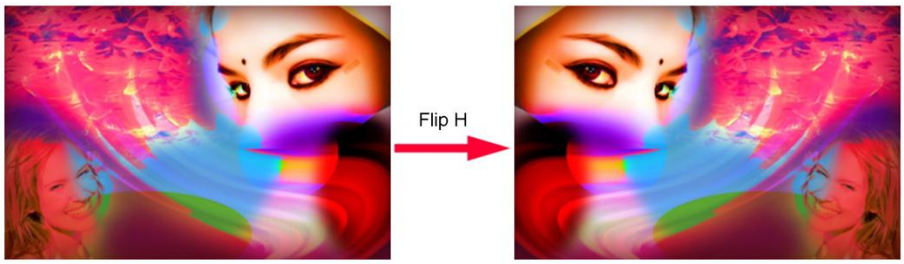
NR, Block NR, Mosquito NR and Combing NR.

Invert: User can enable or disable the invert function.

Flip V: User can enable or disable the Flip V function. When choose “ON”, the effect picture is as follows:

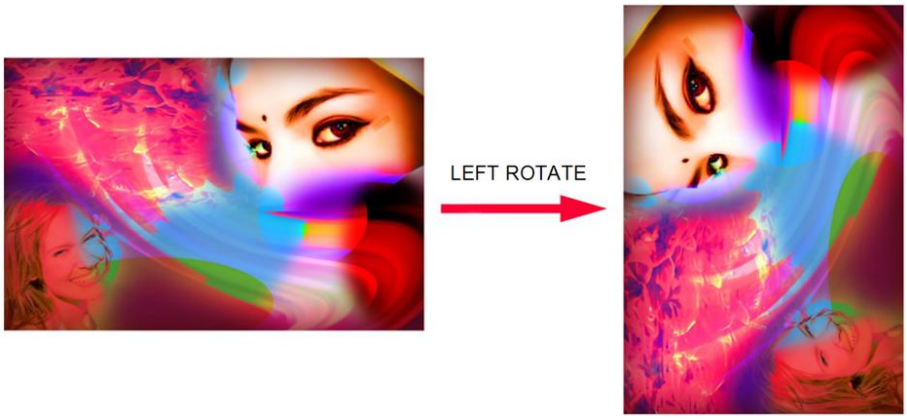


Flip H: User can enable or disable the Flip H function. When choose “ON”, the effect picture is as follows:



Flip 90 Degree: User can enable or disable the Flip 90 Degree function. It includes left rotate and right rotate.

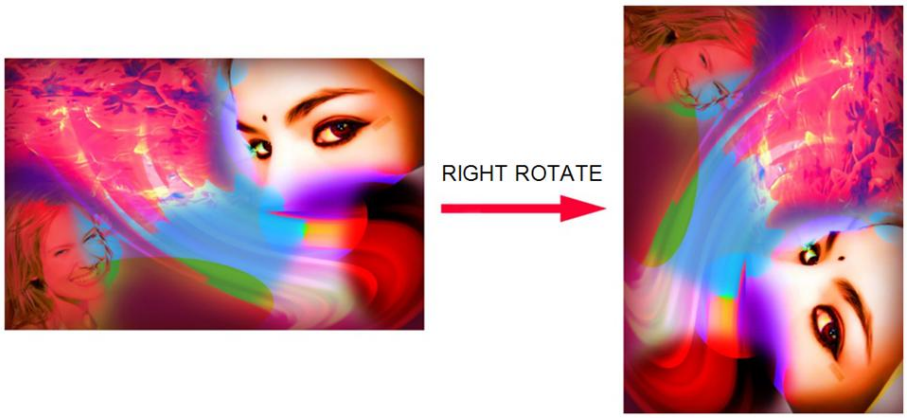
LEFT ROTATE:



RIGHT ROTATE:

4. Menu Orientation

Menu



Histogram: User can enable or disable the histogram function. The histogram will show the brightness layout of the image.

Genlock: User can enable or disable the genlock function, and set external and input signal genlock.

Output Select: Use can choose CHA or CHB, and output DVI, HDMI, VGA or CVBS signal.

SDI1 Level: When install two SDI outputs module, user can set the SDI1 output as Level A or Level B.

SDI2 Level: When install two SDI outputs module, user can set the SDI2 output as Level A or Level B.

Custom Formats

The special display project or LED display application would like to require special resolution settings to meet the requirement.

Details please refer to the instructions in the manual: How to customized output resolution.

Views

Push the [MENU] button, OLED shows the menu, turn the knob and select <Views>, push the knob to confirm, show level 2 menu as follows:

Recall: Turn the knob to choose the recall the save mode.

Save: Turn the knob to choose the save channel, VSP 628PRO supports 22 files.

Delete: Delete the file.

Delay Recall: Set delay the output time. When more than one equipment power on, and the processor is the end equipment in order to improve question that can't identify the input signal and phenomenon that LED screen appear messy code and flash screen, now need to delay the input time.

Transition

Push the [MENU] button, OLED shows the menu, turn the knob and select <Transition>, push the knob to confirm, show level 2 menu as follows:

Trans With: Can choose transition mode include Fade or Cut.

Trans Time: Set the transition time. The transition time adjustment range is from 0.1S to 10S.

System

Push the [MENU] button, OLED shows the menu, turn the knob and select <System>, push the knob to confirm, show level 2 menu as follows:

System Mode: VSP 628PRO supports 5 kinds of system modes, user can choose the mode according to actual need:

1. Standard: In this mode, all the outputs are the same image, the same resolution, and support fade in fade out switch. Each input signal supports scale, effects setting independently.
2. Dual 2K: In this mode, the two channels output independently, CHA outputs to DVI and VGA, CHB outputs to HDMI, CHA and CHB can input any signal and set different resolutions, but can not support fade in fade out switch. Each input signal supports scale, effects setting

independently.

User can push the [MENU] button to enter to menu items, choose <Output>, push the knob to confirm, turn the knob, choose <Channel select>, turn the knob to choose CHA or CHB.

3. Switcher: In this mode, the HDMI output is preview image, and the DVI and VGA output is program image, preview signal can not support fade in fade out switch, and program signal supports.
4. Split: In this mode, user can set split simply, and can set the split parameters of single or multiple devices quickly.
5. Mindelay: In this mode, user can achieve the same input and output resolutions, and achieve the least processor delay time.

Ethernet: Network setting, including:

DHCP: Can choose “ON” or “OFF”.

IP: 192.168.000.100.

Subnet Mask: 255.255.255.000.

Gateway: 192.168.000.001.

State: Show the ethernet state.

Input EDID: Including Input DVI, Input HDMI and Input DP, the settings are as follows:

EDID Info: User can read the EDID information.

Custom Formats: User can custom the EDID formats.

Auto Config: Settings are as follows:

DVI device: Copy the EDID of DVI output device to the front-end input source.

HDMI device: Copy the EDID of HDMI output device to the front-end input source.

DVI out format: Set the default EDID output format of input format as DVI out format of the device.

HDMI out format: Set the default EDID output format of input format as

HDMI out format of the device.

RGBDVI: Copy the system default RGBDVI EDID to the EDID of input source. It can not support DP input.

RGBHDMI: Copy the system default RGBDVI EDID to the EDID of input source. It can not support DP input.

Factory Reset EDID: User can factory reset the EDID.

DSK: DSK function, settings as follows:

Input Source: Select the input source.

Preset: Include Black BackGround, Green BackGround, Blue BackGround, Red BackGround, White BackGround.

Alpha: Image transparency, setting, the adjust range is between 0~100.

Red Min: The adjust range is between 0~255.

Red Max: The adjust range is between 0~255.

Green Min: The adjust range is between 0~255.

Green Max: The adjust range is between 0~255.

Blue Min: The adjust range is between 0~255.

Blue Max: The adjust range is between 0~255.

DSK: Can select “ON” or “OFF”, system default “OFF”.

Lock Front Panel: In order to avoid the wrong operations, user can lock front panel.

Note

The OLED panel will show: Locked Panel! Press SCALE Key For 3 Seconds To Unlock Panel!

LANGUAGE: User can choose Chinese or English according to their needs to operate the interface more quickly.

Logo

Use can capture or display the present logo.

4. Menu Orientation

Menu

Display Setup

Push the [MENU] button, OLED shows the menu, turn the knob and select <Display Setup>, push the knob to confirm, show level 2 menu as follows:

Brightness: Brightness setting, the adjustment range is 0~10.

Calibration: Calibrate the brightness, the adjustment range is 0~10.

Test Pattern

Push the [MENU] button, OLED shows the menu, turn the knob and select <Test Pattern>, push the knob to confirm, show level 2 menu as follows:

Type: Choose the test pattern type, including LOGO, H RAMP, V RAMP, 100% COL BAR, 75% COL BAR, 16*16 GRID, 32*32 GRID, BURST, 50% GRAY, GRAY STEP1, GRAY STEP2, WHITE、BLACK and SMPTE COL BAR.

Raster Box: User can choose enable or disable the raster box function.

Diag Motion: User can choose enable or disable the diag motion function.

AOI Raster Box: User can choose enable or disable the AOI raster box function. If choose “ON”, user can choose the types including Box X, Box Y, Box Width and Box Height. If image quality distorts by improper operation, it can be recover by reset. AOI raster box will display except in TP mode.

Tech Support

User can view the device version (include Main Board HW, Control Board HW, Core Board SW, Control Board SW, Web COM, Web Server, FPGA1, FPGA2, Optional In, Input SDI1, Input SDI2, Multi Sync, 2U LCD and Sending Card), Serial Number, Email, Website, WhatsApp and Skype.

Factory Reset

Enter Factory Reset to reset the IP, push the knob to confirm, and VSP

4. Menu Orientation

Menu

628PRO is reset to its factory settings. After 5 seconds, it completes factory settings and is ready for more operations.

Note

All the items marked <N/A> is the functions not avail, we will complement it with the functional improvement.

5. Communication Software Guideline

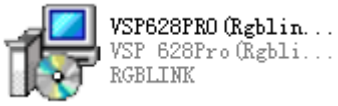
In This Chapter

This chapter provides detailed information about the control communication software. The following topics are discussed:

- Software Installation
- Software Operation

Software Installation

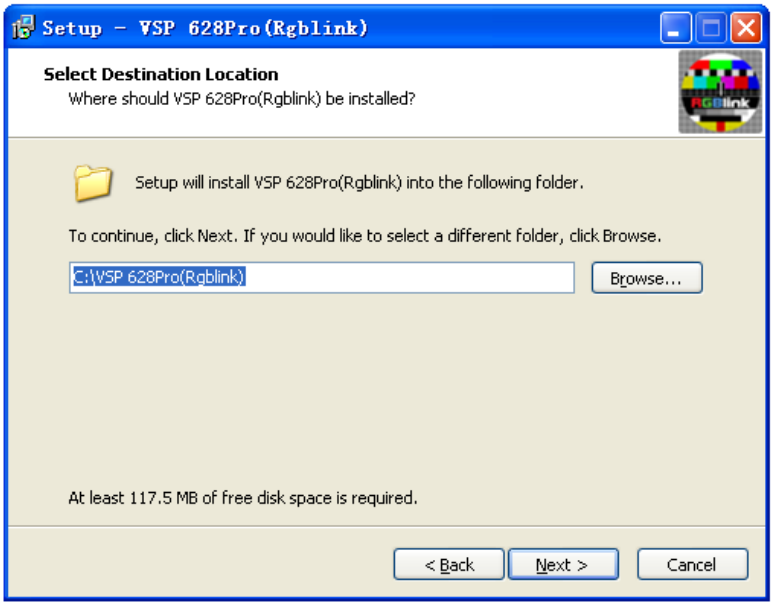
VSP 628PRO video processor configured with user friendly communication software, including Widows version and Apple version. (Apple version only support TCP control).

Double click 

to install, click “Next” to next dialog:

Setup - VSP 628Pro(Rgblink)
Welcome to the VSP 628Pro(Rgblink) Setup Wizard
This will install VSP 628Pro(Rgblink) version 1.5.1.3 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
RGBlink
Next >
Cancel

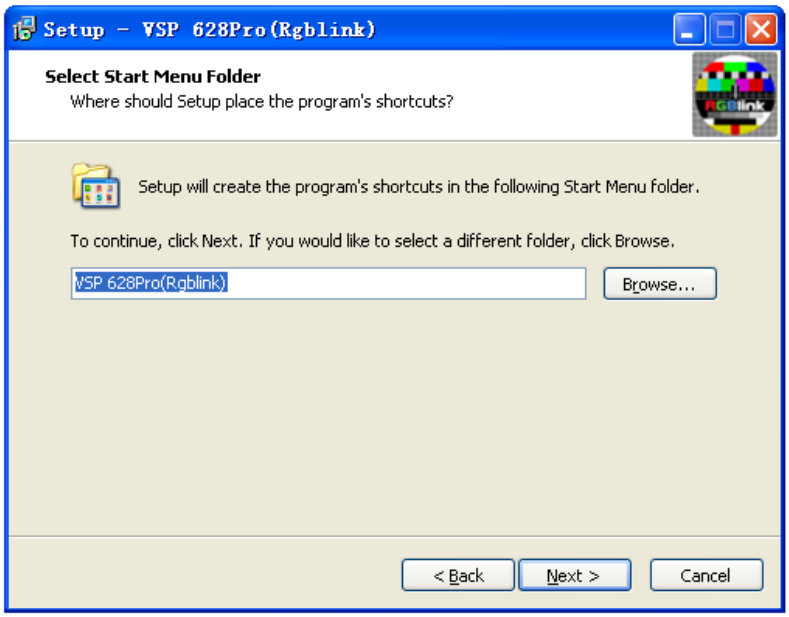
Click “Next” to go on:


Setup - VSP 628Pro(Rgblink)
Select Destination Location
Where should VSP 628Pro(Rgblink) be installed?
Setup will install VSP 628Pro(Rgblink) into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\VSP 628Pro(Rgblink)
Browse...
At least 117.5 MB of free disk space is required.
< Back
Next >
Cancel

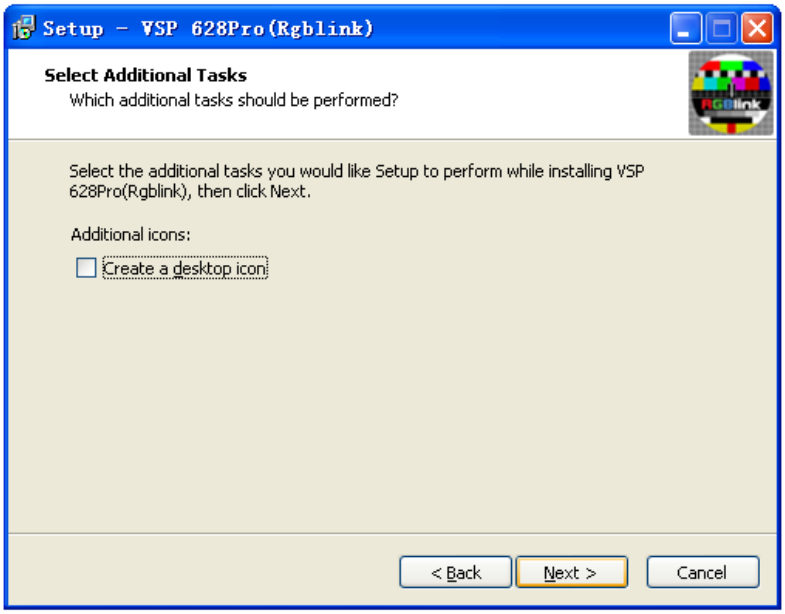
5. Communication Software Guideline

Software Installation

Click “Next” to go on:


Setup - VSP 628Pro(Rgblink)
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
VSP 628Pro(Rgblink)
Browse...
< Back
Next >
Cancel

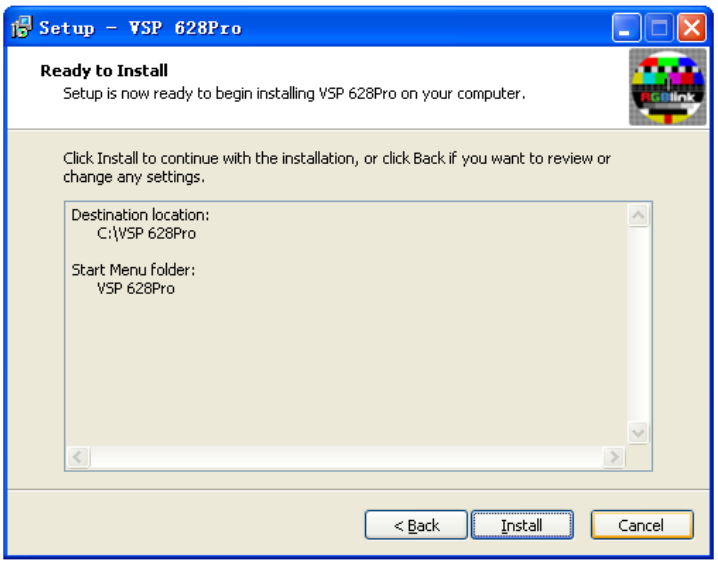
Click “Next” to go on:

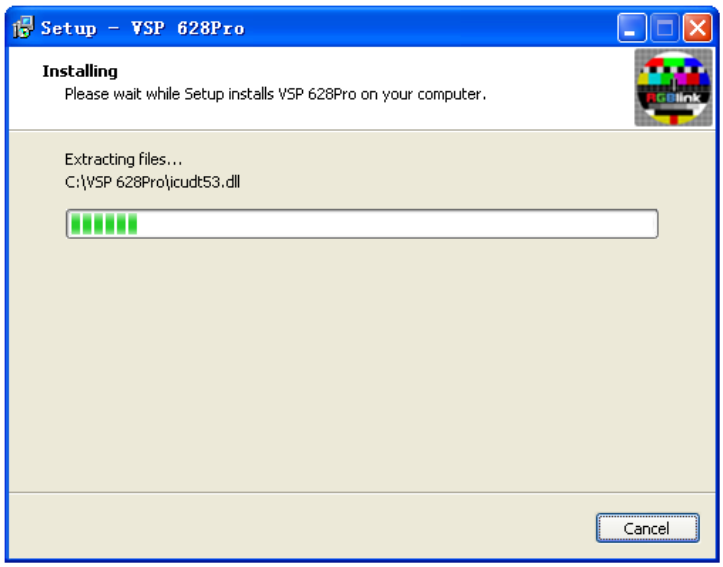

Setup - VSP 628Pro(Rgblink)
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing VSP 628Pro(Rgblink), then click Next.
Additional icons:
Create a desktop icon
< Back
Next >
Cancel

Click “Install” to go on:

5. Communication Software Guideline

Software Installation


Setup - VSP 628Pro
Ready to Install
Setup is now ready to begin installing VSP 628Pro on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\VSP 628Pro
Start Menu folder:
VSP 628Pro
< Back
Install
Cancel

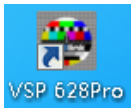


Click “Finish” and ready to run VSP 628PRO console:

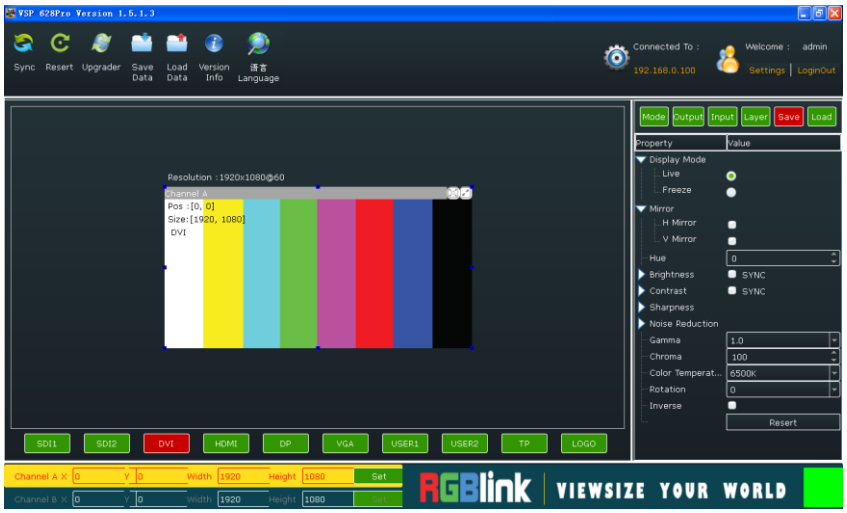
Setup - VSP 628Pro(Rgblink)
Completing the VSP 628Pro(Rgblink) Setup Wizard
Setup has finished installing VSP 628Pro(Rgblink) on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch VSP 628Pro(Rgblink)
RGBlink
Finish

Software Operation

Install communication which comes with the package of VSP 628PRO device.

Double click 

icon from home screen to run the software. VSP 628PRO communication software interface as shown:



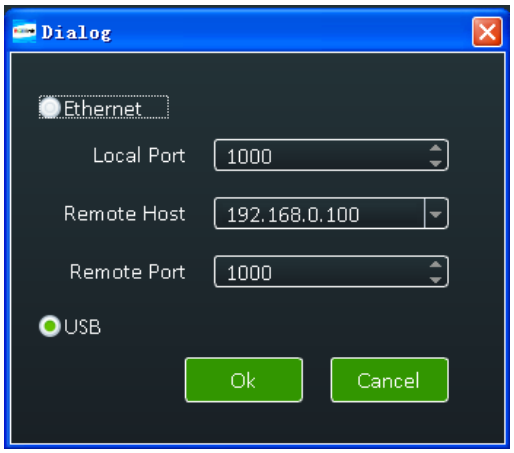
Set up Communication

First, connect the VSP 628PRO to the computer with the network cable or USB cable, and boot the device.

Then, click the connection icon and enter to the software interface as below:

5. Communication Software Guideline

Software Operation



Finally, choose Ethernet or USB connect, click “Ok”, and finish connecting. The green square in the bottom right means the connection is successful, white red is not.

Use

Image Toolbar

Show the image information, including resolution, channel, position, size and the signal. The image size will be changed when set the parameters.

Signal Select

Click the signal icon, and the output image will be switched to the selected signal.

5. Communication Software Guideline

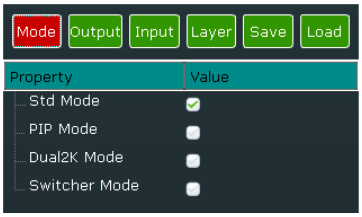
Software Operation

Scale

Choose Channel A or Channel B, and scale the image by adjusting X, Y, Width and Height according to actual need. Click “Set” after finish.

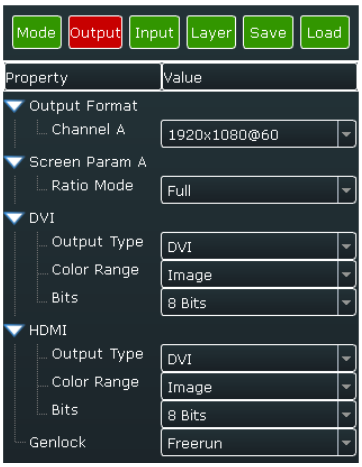
Mode

Click “Mode”, and enter to the interface as below. VSP 628PRO supports Std mode, PIP Mode, Dual 2K Mode, Switcher Mode and Split Mode. User should choose Std Mode before choose PIP Mode, or it will not be shown on the interface.



Output

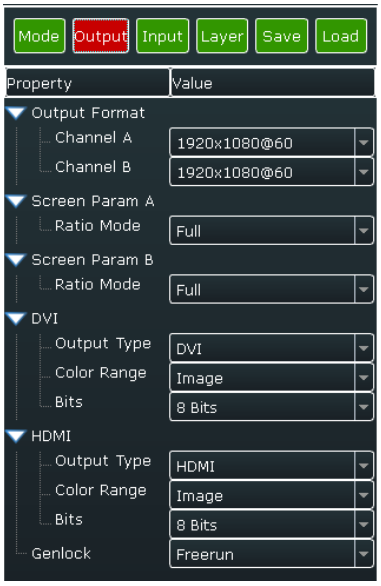
Click “Output”, and enter to the interface as below if choose Std mode, PIP Mode and Switcher Mode.



Click “Output”, and enter to the interface as below if choose Dual 2K Mode.

5. Communication Software Guideline

Software Operation



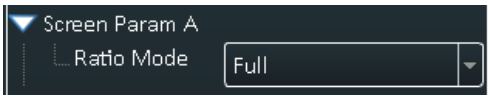
Output Format:

Choose the output format of CHA by selecting from scrolling down list.

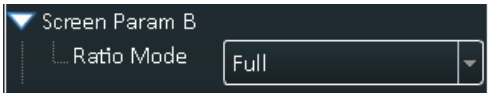
Choose the output formats of CHA and CHB by selecting from scrolling down list if choose Dual 2K Mode.

Screen Parameter:

Choose the ratio mode of Screen Param A by selecting from scrolling down list, including Full, Same with Input, 3:2, 4:3, 5:4 and 16:9.



Choose the ratio mode of Screen Param A and Screen Param B if choose Dual 2K Mode.



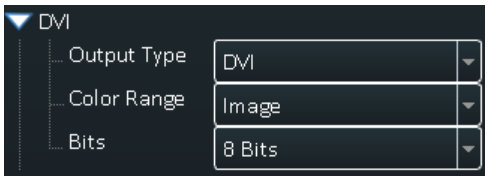
DVI:

DVI setting, including output type, color range and Bits.

Output Type: Can choose DVI or HDMI, system default DVI output, HDMI signal output will enable when HDMI option checked.

Color Range: Can choose image or video.

Bits: Set the image bits, system default DVI is 8 bits.



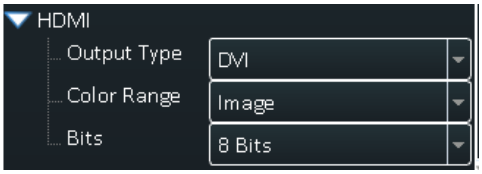
HDMI:

HDMI setting, including output type, color range and Bits.

Output Type: Can choose DVI or HDMI.

Color Range: Can choose image or video.

Bits: Set the image bits, system default HDMI is 10 bits, user can choose 8 bits or 12 bits.

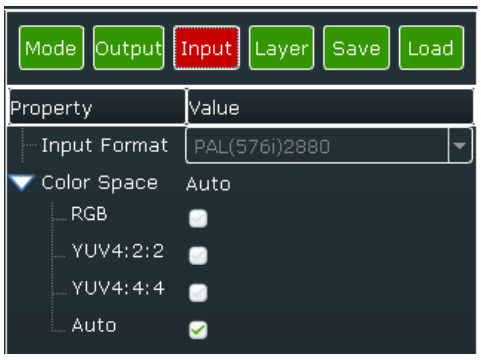


Genlock:

Use can enable or disable the genlock function, and set external and input signal genlock.

Input

Click “Input”, and enter to the interface as below:



Input Format:

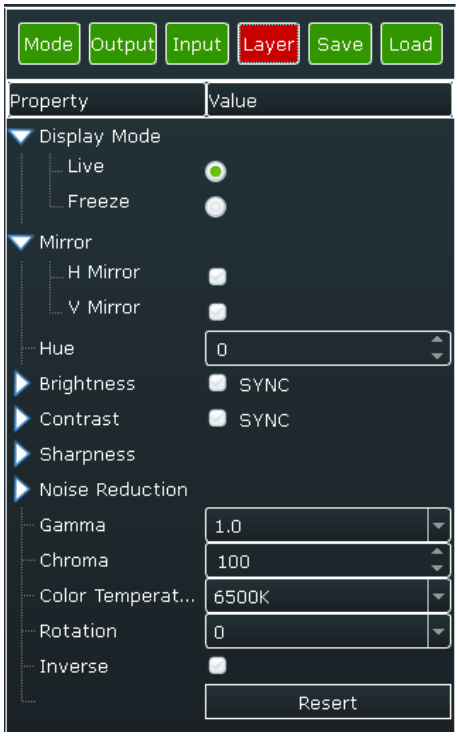
Read the current input format.

Color Space:

Choose the color space, including RGB, YUV4:2:2, YUV4:4:4 and Auto.

Layer

Click “Layer”, and enter to the interface as below:



Display Mode:

Choose the display mode as live or freeze.

Mirror:

Choose H Mirror or V Mirror.

5. Communication Software Guideline

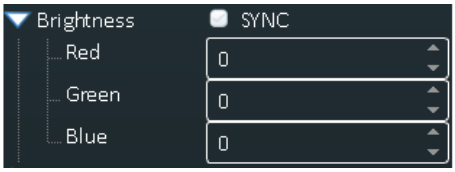
Software Operation

Hue:

Set the hue of the image according to actual need, the adjustment range is -180~180.

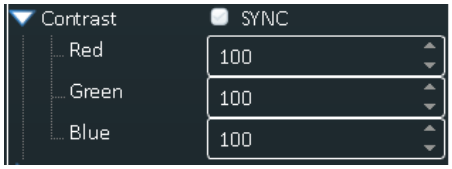
Brightness:

Set the brightness, including red, green and blue. If choose “SYNC”, when drag one color, the other two color values will change accordingly to the same value. The adjustment range is -512~512.



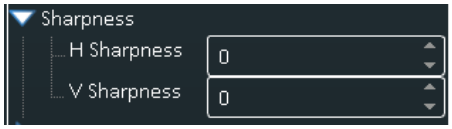
Contrast:

Set the contrast, including red, green and blue. If choose “SYNC”, when drag one color, the other two color values will change accordingly to the same value. The adjustment range is 0~399.



Sharpness:

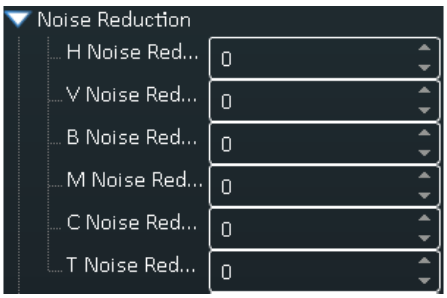
Set the H sharpness and V sharpness according to actual need, the adjustment range is -10~10.



Noise Reduction:

User can do noise reduction processing for the image, which including H Noise Reduction, V Noise Reduction, B Noise Reduction, M Noise Reduction, C Noise Reduction and T Noise Reduction. The adjustment

range is 0~3.



Gamma:

Enable the gamma function and set the gamma value by selecting from scrolling down list.

Chroma:

Set the chroma of the image according to actual need. The adjustment range is 0~399.

Color Temperature:

Set the color temperature of the image according to actual need, user can choose 3200K, 6500K and 9300K.

Rotate:

Set the rotate of the image according to actual need, user can choose -90, 0 and 90.

Inverse:

User can enable or disable the inverse function.

Reset:

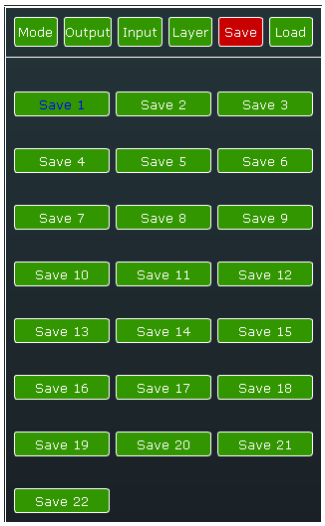
If image quality distorts by improper operation, it can be recover by reset.

Note

All the settings above are only for the selected channel, and for preview channel in switcher mode.

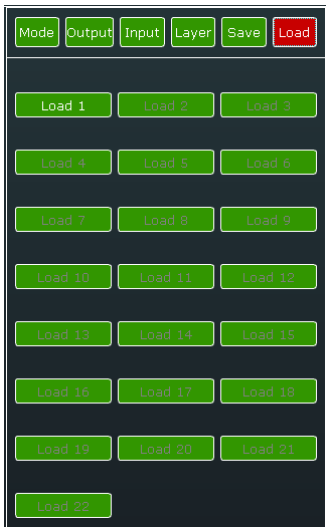
Save

Click “Save”, and enter to the interface as below. VSP 628PRO supports 22 kinds of save modes. Click the save mode to save the parameters.



Load

Click “Load”, and enter to the interface as below. VSP 628PRO supports 22 kinds of load modes. Click the save mode to load the saved parameters.



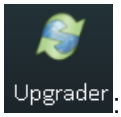
5. Communication Software Guideline

Software Operation

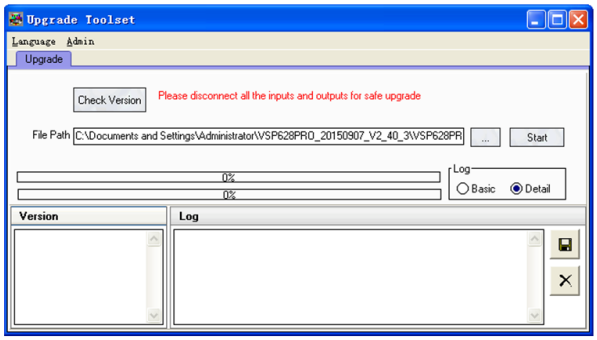
Other

: Read the current parameters of VSP 628PRO.

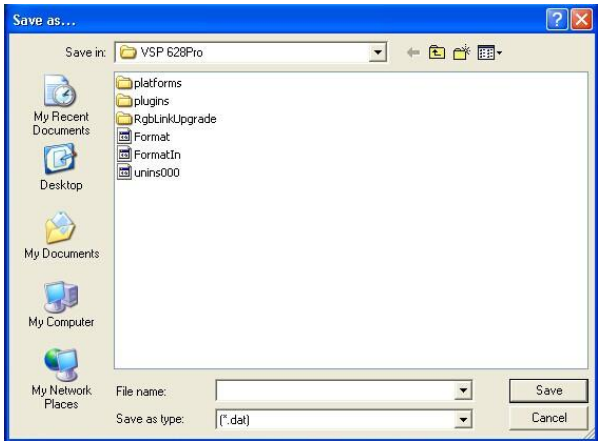
: Reset the factory settings.



: Upgrade the device, and user can clear the log.



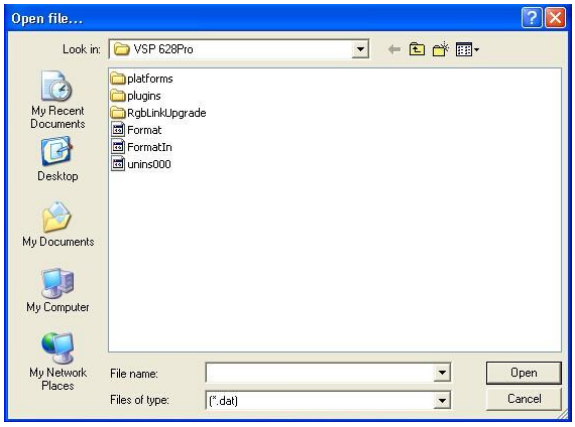
: Save the data to the computer hard drive.

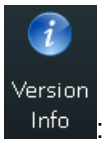


: Load the data from the computer.

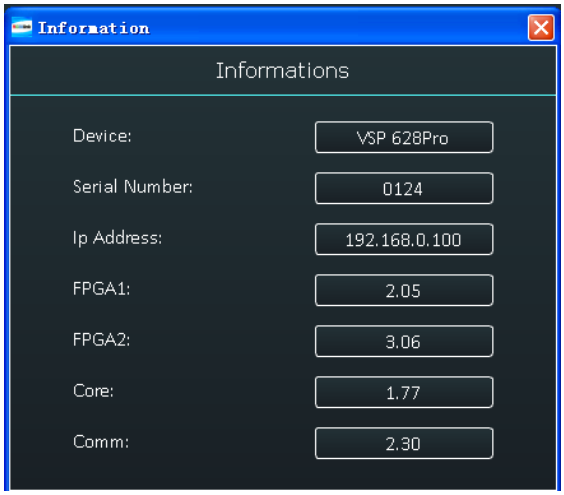
5. Communication Software Guideline

Software Operation

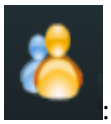




: Show the device version information.



: This software supports both Chinese and English, user can switch the language by “Language” option.



: Operation permissions settings for manager, log in and set the log password of windows control program. VSP 628PRO V1.7 can not support this function.

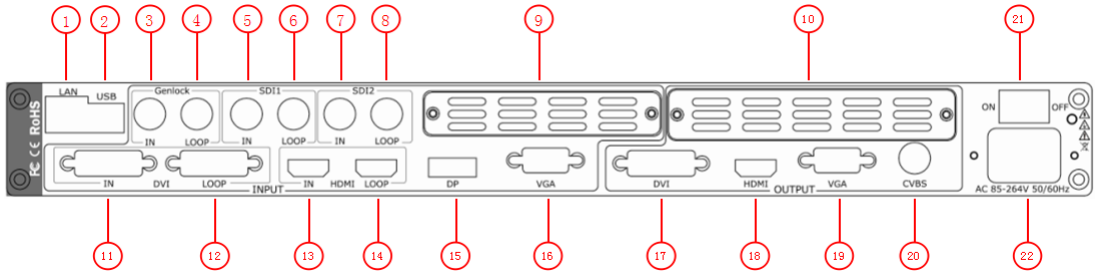
6. System Setup and Operations

In This Chapter

This chapter provides comprehensive instructions for system setup and operations. The following topics are discussed:

- Interface and Input Signal Option
- How to Realize the System Mode Setting
- How to Do Customized Output Resolution
- How to Realize the Test Pattern Setting
- How to Realize LAN Remote Control Setting
- How to Realize WEB SERVER Cross-platform Setting
- How to Save the parameter
- How to Load the Saved Parameter

Interface and Input Signal Option



NO	INTERFACE	NO	INTERFACE
1	10/100M Interface	13	HDMI Input
2	USB Interface	14	HDMI Loop Out
3	Genlock Input	15	DP Input
4	Genlock Loop Out	16	VGA Input DB15 Port
5.7	3G-SDI Input	17	DVI Output
6.8	3G-SDI Loop Out	18	HDMI Output
9	Optional Module Slots	19	VGA Output
10	Optional Module/Sending Card Interface	20	CVBS Output (OC Optional Module)
11	DVI Input	21	Illuminated Power Switch
12	DVI Loop Out	22	Power IEC-3 Port

17. DVI output is used to connect with a standard DVI display system, such as sending card (including Nova, Colorlight and Linsn) of LED screen. The VSP 628PRO supports 70 kinds of common resolutions, user can choose the output resolution in <Output Format> in <Output> option by pushing the [MENU] button.

19. In switcher mode, the **VGA** output interface is default program output, and also can be selected as preview output according to actual need. In standard mode, it is same with DVI and HDMI output.

4.6.8.12.14. Loop output interface of the signal source, it can output the input signal without any treatment and change. This is the advantage of

6. System Setup and Operations

Interface and Input Signal Option

VSP 628PRO. Any input signal can be realized without changing its format, and output the original image.

Besides the control interfaces, sending cards, power and the output interface above-mentioned, the other interfaces are video signal input interfaces, including Genlock, 3G-SDI, DVI, HDMI, DP and VGA.

How to Realize the System Mode Setting

VSP 628PRO supports 5 kinds of system modes: Standard, Dual 2K, Switcher, Split and MinDelay. Push the [MENU] button to enter to the menu items, choose <System>, push the knob to confirm. Turn the knob, choose <System Mode>, user can choose the mode according to actual need.

1. Standard

In this mode, all the outputs are the same image, the same resolution, and support fade in fade out switch. Each input signal supports scale, effects setting independently.

Single Image Switching

VSP 628PRO can realize seamless effects switching between two channels. Push the signal button, and the signal will be switched to the output.
For example, the [SDI1] button light is on, it means the signal of output is SDI1, if user need to switch to VGA signal, push the [VGA] button, and the signal will be seamless cut or fade in fade out to the output. User can adjust the switch speed in <Trans Time> option in <Transition>by pushing the [MENU] button.

PIP Setting

Enable the PIP function:

VSP 628PRO supports seamless switch in single image and double images. Push the [PIP] button, the button light is on, and enable the PIP function.

Choose the signal in PIP:

VSP 628PRO can output two same or different signals to the output, the settings are as follows:

6. System Setup and Operations

How to Realize the System Mode Setting

1. Push the [PIP] button, and enable the PIP function.
2. Push the [SCALE] or [DIMMER] button, choose <Layer Select>, and push the knob to confirm. (User can also choose <Layer Select> in <Input> or <Output> option by pushing the [MENU] button.
3. Turn the knob, and choose main or sub image.
4. Choose the signal, and the selected image will be switched to this signal.

Scale Setting

Push the [SCALE] button, and enter to the scale function menus, user can adjust the H size, V size, H/V size, H pos, V pos and scaling mode by knob or number buttons. If image quality distorts by improper operation, it can be recover by reset.

Note: In PIP mode, user need to choose the image that to set in <Layer Select> option before setting.

Image Size Adjust

Push the [MENU] button, and enter to the menu items. Turn the knob, and choose <Input>, push the knob to confirm. Turn the knob, choose <Sizing Adjust>, push the knob to confirm. User can adjust the H size, V size, H pos V pos, and mask top, bottom, left and right of the image by knob or number buttons. If image quality distorts by improper operation, it can be recover by reset.

Note: In PIP mode, user need to choose the image that to set in <Layer Select> option before setting.

Dimmer and Effects Setting

Push the [DIMMER] button, and enter to the menu items, user can set the dimmer and effects. The adjustment value range of dimmer is 0~100.

The setting for effects include brightness, contrast, chroma, hue, color

temperature, color correction, gamma, brightness, H sharpness, V sharpness, noise reduction, Invert, Flip V, Flip H and Flip 90 Degree.

Note: User can also choose <Effects> in <Output> option by pushing the [MENU] button for setting.

2. Dual 2K Setting

In this mode, the two channels output independently, CHA outputs to DVI and VGA, CHB outputs to HDMI, CHA and CHB can input any signal and set different resolutions, but can not support fade in fade out switch. Each input signal supports scale, effects setting independently.

Same operation with standard mode, in this mode, user can switch the signal, set the size and position, mask the image and adjust the dimmer and effects. User need to choose the channel in <Channel Select> before setting.

For example, choose the signal of CHB, first, push the [MENU] button to enter to menu items, choose <Output>, push the knob to confirm, turn the knob, choose <Channel select>, turn the knob to choose CHB. Then choose the signal, CHB will switch to the selected signal.

3. Switcher Setting

In this mode, the HDMI output is preview image, and the DVI and VGA output is program image, preview signal can not support fade in fade out switch, and program signal supports.

Same operation with standard mode, in this mode, user can switch the signal, set the size and position, and mask the image.

All the settings above are for preview, push [TAKE] button after setting, and the preview image will be cut or fade in fade out to the program.

4. Split

In this mode, user can set split simply, and can set the split parameters of single or multiple devices quickly. The split operations are as follows:

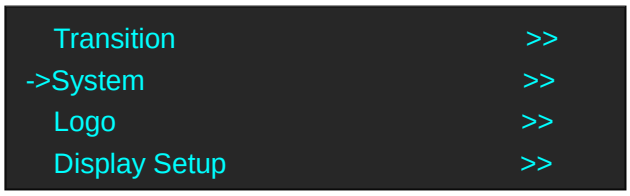
Project: There is one LED display, the size is 3864x1152, divide into right and left halves, the left width is 1824 and the right width is 2040, we will cascade the two LED displays with one VSP 628PRO, and display a complete picture in the whole screen.

(1) Connect the interface

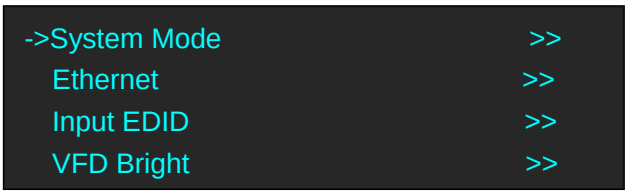
Connect the DVI signal to the DVI input interface, connect the DVI output to the left LED sending card, and connect the HDMI output to the right LED sending card.

(2) Choose the system mode

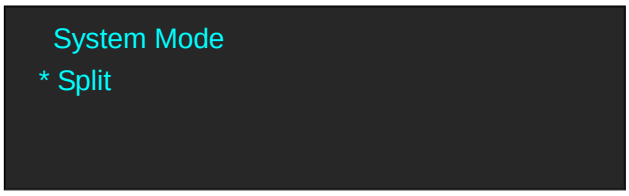
Push the [MENU] button to enter to the menu items, turn the knob to choose <System>:



Push the knob to confirm, turn the knob to choose <System Mode>:



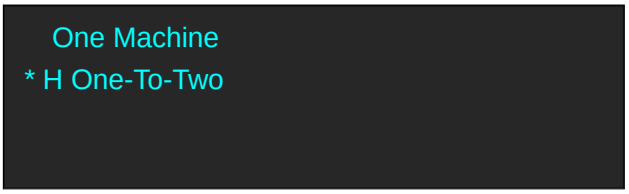
Push the knob to confirm, turn the knob to choose <Split>:



(3) Choose the split mode

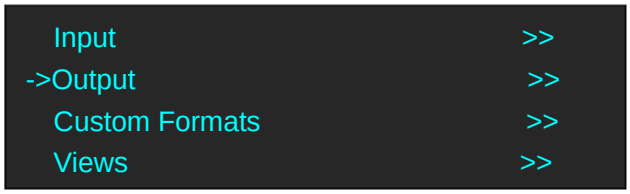
Turn the knob in split menus, and choose the split mode as <One Machine> or <Multi Machine>.

Choose <One Machine>, push the knob to confirm, turn the knob, choose the split mode, for example, choose <H One-To-Two>:



(4) Set the output format

Push the [MENU] button to enter to the menu items, turn the knob and choose <Output>.



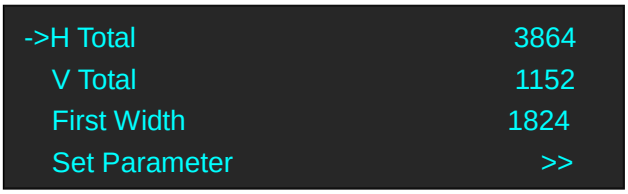
Push the knob to confirm. Turn the knob to choose <Output Format>, and set the output formats as 2048x1152@60hz.

The resolutions of the two outputs will change at the same time.

(5) Set the split parameters

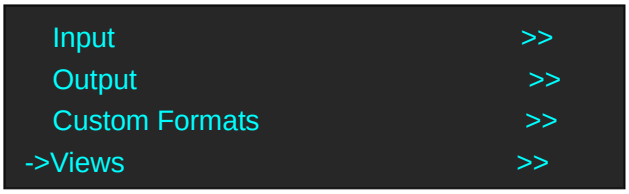
After choose the split mode, the OLED screen will show the split parameters,

set the H total as 3864, set the V total as 1152, set the first width as 1824, then turn the knob, and choose <Set Parameter>, push the knob to confirm.



(6) Save

Push the [MENU] button to enter to the menu items, turn the knob and choose <Views>.



Push the knob to confirm. Turn the knob again and choose <Save>.

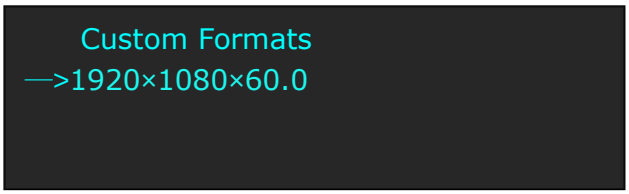
Push the knob to confirm. Turn the knob to choose the save mode, for example, choose File 4, push the knob to confirm.

5. MinDelay

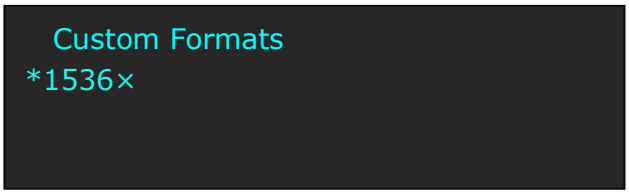
In this mode, user can achieve the same input and output resolutions, and achieve the least processor delay time. Except effects function, it can not support scale, De interlacing, etc.

How to Do Customized Output Resolution

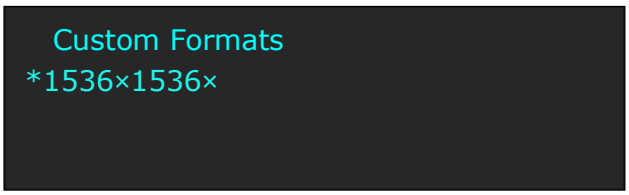
Push the [MENU] button to enter to the menu items, turn the knob and choose <Custom Formats>, push the knob and confirm.



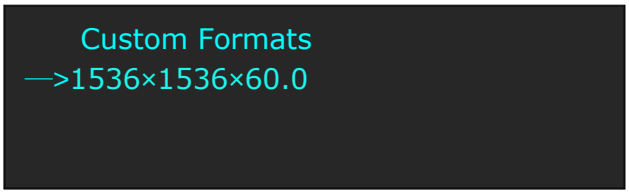
1. Enter digits of desired resolution by pressing the red number buttons. For example, input 1536 as following:



2. After the digital, push the knob will add ×, means before × is the horizontal size. Same operation for vertical size, For example, input 1536 as following:



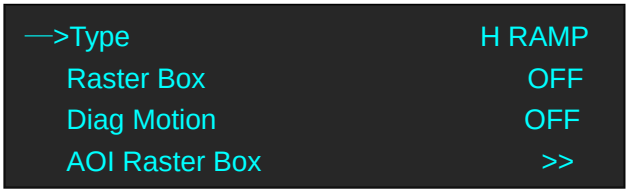
3. After the digital, push the knob will add ×, means before the × is the vertical size, and after the × is the refresh rate. Only digital 50 or digital 60 supports for the refresh rate. For example, input 60 as following. Use the digital buttons to finish the settings.



4. After input all the values, push the knob to enable VSP 628PRO to output this resolution. VSP 628PRO will take 5~10 seconds to enable this output resolution.

How to Realize the Test Pattern Setting

Push the [LOGO] button, user can set the test pattern, the settings are as follows:



Type: Choose the test pattern type, including LOGO, H RAMP, V RAMP, 100% COL BAR, 75% COL BAR, 16*16 GRID, 32*32 GRID, BURST, 50% GRAY, GRAY STEP1, GRAY STEP2, WHITE, BLACK and SMPTE COL BAR.

Raster Box: User can choose enable or disable the raster box function.

Diag Motion: User can choose enable or disable the diag motion function.

AOI Raster Box: User can choose enable or disable the AOI raster box function. If choose “ON”, user can choose the types including Box X, Box Y, Box Width and Box Height. If image quality distorts by improper operation, it can be recover by reset.

How to Realize LAN Remote Control Setting

To realize LAN remote control need to build up a LAN platform, include the following:

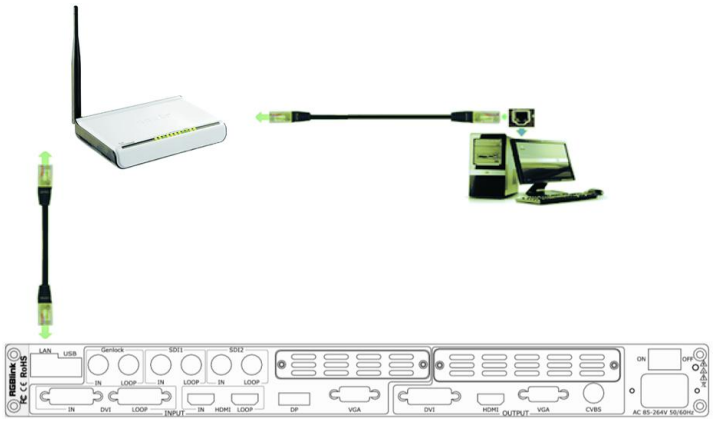
One computer (Laptop or computer, used to do remote control which installed windows control software in the computer).

One router (Better to have wireless function which may realize WEB control cross different platform; without wireless function is available but only realize cable remote control. No limitation for router's model and brand, such as VPN router model: Netcore 255 or 266; Volans VE 760W or 982W).

One VSP 628PRO processor (as long as the router's network ports can connect to, user can place multi pieces of VSP 628PRO).

The operations are as follows:

Step one: LAN physical connection. Connect VSP 628PRO and router with network cable, then connect computer and router with network cable also, use the LAN port of router, WAN port is used for connecting to outer net. Sketch map as below:

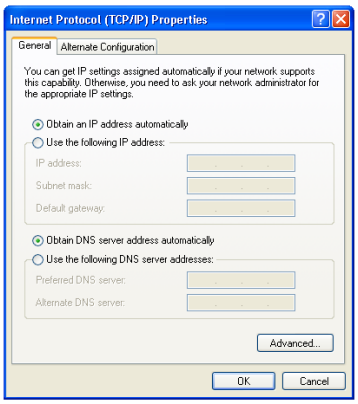


Step two: IP address setting (processor's default IP address is 192.168.0.100)

Firstly change computer's local connection to "automatically getting the IP", showed as below:

6. System Setup and Operations

How to Realize LAN Remote Control Setting


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

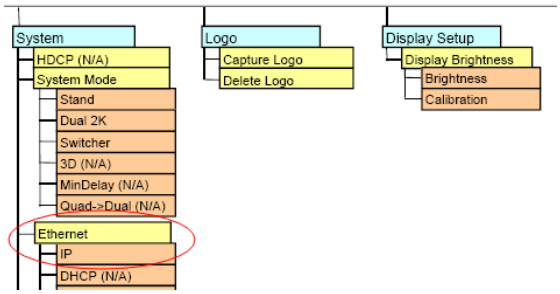
Secondly refer to router's instruction (user manual, specification), and find out router's default network segment.

If router's default network segment is 192.168.0.1, then it is same to processor IP address segment, open up windows control software and user can directly control on VSP 628PRO.

If router's default network segment is 192.168.1.1, then user need to change router's default gateway or change processor's IP, both methods are available, but we suggest to change processor's IP.

Method one: Change processor's IP.

Push the [MENU] button on front panel and go into items as below picture shows. Change processor's IP to be 192.168.1.100, confirm and restart the processor, then user can control on VSP 628PRO via windows control software.

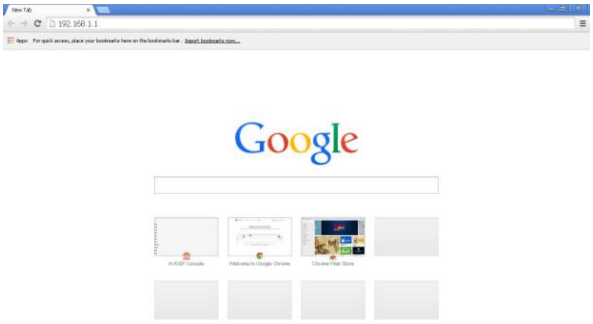


Method two: Change router's gateway.

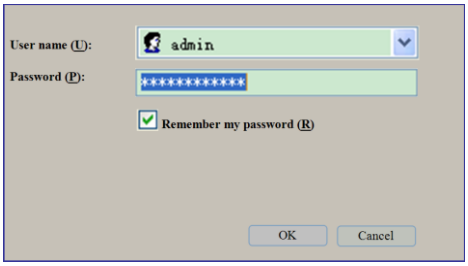
Type in 192.168.1.1 on the browser and go into router setting.

6. System Setup and Operations

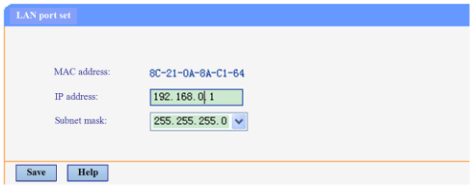
How to Realize LAN Remote Control Setting



Type in default account and code (please refer to the router user manual for the information).



Go to router setting part and find out “LAN port setting”, change the default value “192.168.1.1” to be “192.168.0.1”.



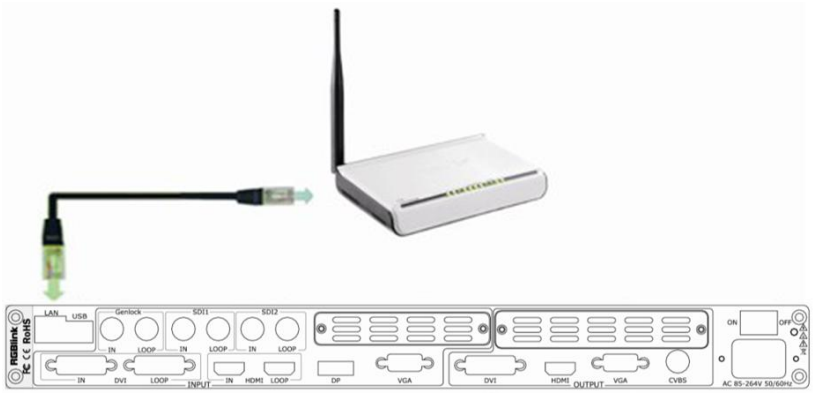
Save the setting and restart the router, then user can control on VSP 628PRO via windows control software.

How to Realize WEB SERVER Cross-platform setting

First, the formation of LAN Remote Control Platform: one Ipad or one Iphone, one router (with wireless functions, for example with a wireless-enabled VPN router models: Netcore 255 and 266. Volans VE760W, 982W.), one VSP 628PRO processor (can be more processors, as long as the network interface can be connected to the router)

The first step: LAN Physical Connection: connect VSP 628PRO and routers by CAT5, and connect routers by CAT5, please use the LAN Ethernet port, WAN port is only used to connect to external networks, it's not allowed to use in this step.

Connection diagram is as below:



The second step: IP address setup. Please refer to IP Setup steps which in the "How to Realize LAN Remote Control Setting" section. (Make sure that processors IP address and router IP address are in the same band.)

When users use Ipad or Iphone, use can use the Safari browser, enter the URL 192.168.0.100 (default) and run. If user using other types of devices will need to install the kernel **webkit browser** such as: **Apple Safari, Google Chrome or Maxthon browser**. The Installing package will provide Google Chrome browser (windows version).

Note: Internet Explorer, Edge and Firefox are not supported.

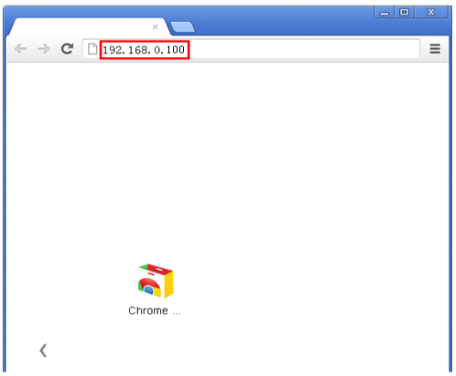
The third step: Make connections.

Click

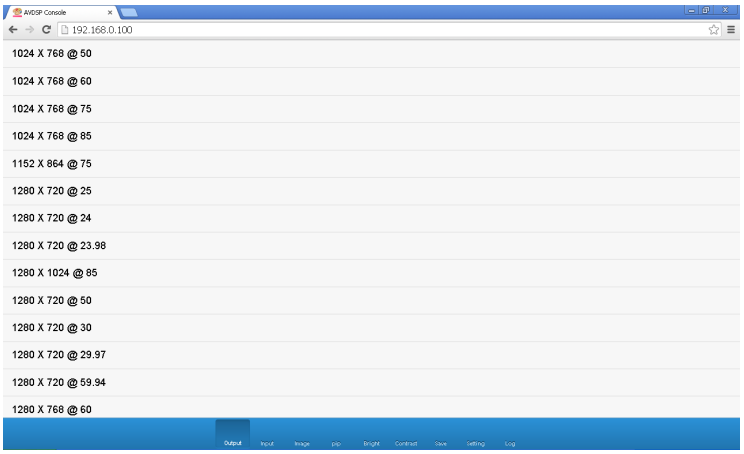
icon, run Google Chrome browser, open the page to enter 192.168.0.100 (default) and run.

6. System Setup and Operations

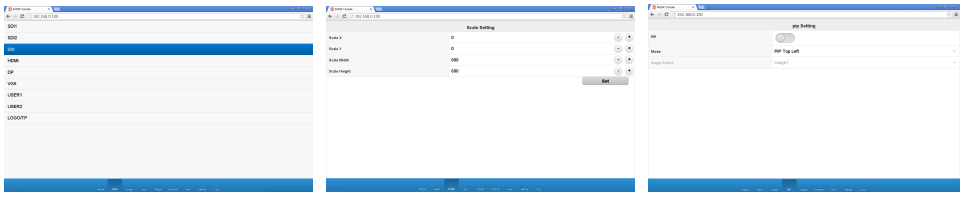
How to Realize WEB SERVER Cross-platform Setting



After connection successfully, Web page appears as VSP 628PRO system control interface.



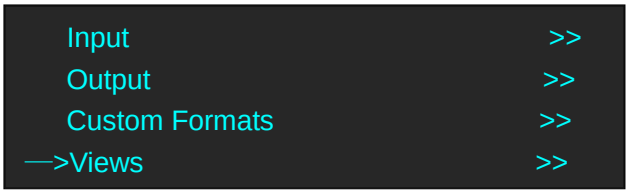
Click on the toolbar below the control interface, then accesses setup menu, now WEB control on VSP 628PRO is available.



How to Save the Parameter

VSP 628PRO provides 22 kinds of save modes, the settings are as follows:

1. Push the [MENU] button to enter to the menu items, turn the knob, choose <Views>, push the knob to confirm.



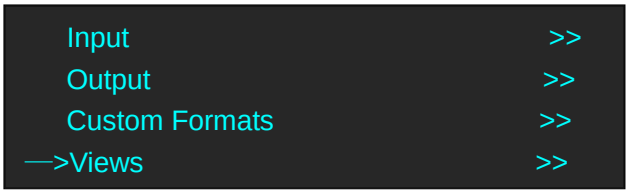
2. Turn the knob, and choose <Save>, push the knob to confirm.

3. Turn the knob, and choose the location that need to save, push the knob to confirm.

How to Load the Saved Parameter

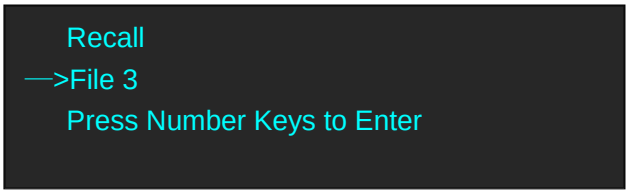
VSP 628PRO provides 22 kinds of save modes, the settings are as follows:

1. Push the [MENU] button to enter to the menu items, turn the knob, choose <Views>, push the knob to confirm.



2. Turn the knob, and choose <Recall>, push the knob to confirm.

3. The button on is ready for recall, and button flashes means just recall. Push the button on or turn the knob to choose the location that need to recall, push the knob to confirm.



Note: User can only recall File 1 to File 10 by pushing the button. Beyond File 10, user need to choose the file by the knob.

7. Common Questions and Solution

In This Chapter

This chapter provides the common questions and solution for the video processor. The following topics are provided:

- OLED Screen prompts "No Core Board"
- No Display on LED Display when Output HDMI to Sending Card, DVI Monitors or DVI Projectors
- Flash Point on LED Display when Output
- APP Software cannot Properly Connected in Mobile Phone or Tablet Computer
- VGA Input Offset or cannot be Full Size Shown
- Show Blurred Screen when Rotate for I System Input
- Can’t Do Split for I System Input
- Show Black Lines or Blurred Screen for DP Input
- Show Upgrade Error after Upgrade MCU Program
- Software Upgrade Failed

7. Common Questions and Solution

OLED Screen prompts "No Core Board"

Upgrade the Device

Please visit our website or contact our sales for device program upgrade package and upgrade guide to upgrade the device.

Confirm if the White Winding on Communication Board is Loose

If upgrade repair can’t solve this problem, please power off the device, take apart the top panel and remove four screws on core board, check if the white winding on the end of the communication board is loose, or take out it to clean and install it again.

Confirm If the Core Board is Loose

If it is not ok yet, please take out the core board, clean the interface and install it again. Make sure it is fasten and then power on for test. This operation need professional person. Make sure the electrostatic protection and electric shock protection. If it cannot solve again, please contact our sales.

No Display on LED Display when Output HDMI to Sending Card, DVI Monitors or DVI Projectors

Set DVI for HDMI Output Format

Some sending cards cannot support HDMI signal format. User need to set DVI for HDMI output format, operations are as follows: push the [MENU]

button, then choose <OUTPUT>, turn the knob and choose <Color Space/Sample/Bit>, choose the HDMI output format as DVI.

Flash Point on LED Display when Output

Change the DVI Cable or HDMI Cable

There is flash point on LED display when input sending card because of the DVI cable quality of good and bad are intermingled, which cause the sending card internal signal attenuation. Please change the 30~40CM DVI short cable.

If there is HDMI input port on sending card, please change the HDMI cable with HDMI adapter, or DVI to HDMI cable, then connect the DVI output or HDMI output to the HDMI input.

Add the Long-term Signal Amplify and Interface Protection Module

Please contact our sales to buy the long-term signal amplify and interface protection module from our company, which can lengthen the transmission distance to 15M, and protect the output interface.

APP Software cannot Properly Connected in Mobile Phone or Tablet Computer

Confirm if the Device Install the Web Server Module

7. Common Questions and Solution

Confirm if the @ icon on the OLED module is white background and black text or black background and white text. If black background and white text, the device doesn't install the Web Server module, and without the APP and network control function. If necessary, please contact our sales to buy.

Confirm if the Web Server Module Driver is Normal

Push the [MENU] button, and choose <Tech Support>, turn the knob to choose <Version>, and confirm if show the Web COM/Web Server version number, if show (N/A), it means the device doesn't install the Web Server module, or the module driver is not normal. If it has installed the Web Server module, please contact our sales for the module driver or the driver installation instruction.

Confirm if IP Conflict for Mobile Phone, Wireless Router and Device

System default the device IP is 192.168.0.100, please check if the IP of wireless router is inconsistent with this IP, the IP will conflict if consistent, and unable to search the device and normal connection. Please change the device IP address, and make sure it is in the same network segment.

VGA Input Offset or cannot be Full Size Shown

Set Auto Adjust for VGA Input

Push the [MENU] button, then choose <INPUT>, turn the knob and choose <VGA ADJUST>, push the knob to confirm. Turn the knob and choose

<AUTO ADJUST>, the auto adjust time is about 10 seconds. If auto adjust cannot solve the problem, please manually adjust in <VGA ADJUST>.

Show Blurred Screen when Rotate for I System Input

Change the Input as P System

VSP 628PRO can not currently support the I system input rotate, please change the input as P system.

Can’t Do Split for I System Input

Change the Input as P System

VSP 628PRO can not currently support the I system split, please change the input as P system, or choose the dual 2K mode to do split.

Show Black Lines or Blurred Screen for DP Input

Switch the Signal Again

The LED screen shows the black lines or blurred screen because of the reasons such as some DP input resolutions, change the input resolution or system default DP. Please push the [DP] button again to confirm or switch to the other signal and then switch to DP signal.

7. Common Questions and Solution

Show Upgrade Error after Upgrade MCU Program

Upgrade the Program Again

VSP 628PRO only needs to upgrade the package after upgrade the program, and only for some old version devices need to upgrade the MCU program. Once upgrade the MCU program, the OLED panel will show writing tip during upgrading. Except it, the others don't need to upgrade the MCU program.

If user upgrade the MCU program first, the device will can't be started. User need to contact our customer service for the version 2.13 package and upgrade to the latest package.

Software Upgrade Failed

Please disconnect the input and output before upgrade.

Processing Bar Stops at About 90%

If processing bar stops at about 90% during _xx_Packge_xx.bin, please use _xx_MCU_xx.bin. After that, no need to upgrade _xx_Packge_xx.bin.

Processing Bar Stops at About 30%

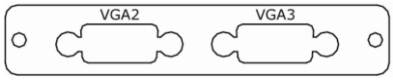
If processing bar stops at about 30% during _xx_Packge_xx.bin, please use _xx_MCU_xx.bin. After upgrade _xx_MCU_xx.bin, re-upgrade _xx_Packge_xx.bin.

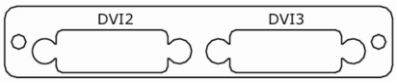
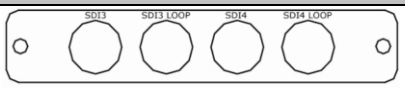
A. Specification

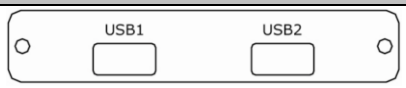
Genlock Input (Standard)	
Number of Inputs	1
Connector	Standard BNC Socket
Supported Standards	480i I 576i I 1080i59.94 I 1080i50 I 720p50 I 720p59.94 I 1080p50 I 1080p59.94 I 1080p60 I 1080psf23.98 I 1080psf24
3G-SDI Input (Standard)	
Number of Inputs	2
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1) I 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
VGA DB15 Input (Standard)	
Number of Inputs	1
Connector	Standard DB15 Socket
Supported Standard	VGA-UXGA
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
Supported Resolution	VGA-UXGA (800 × 600@60 I 1024 × 768@60 I 1280 × 1024@60 I 1440×900@60 I 1600×1200@60)
DVI Input (Standard)	
Number of Inputs	1
Connector	Standard DVI-D socket
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60,

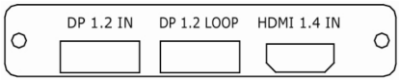
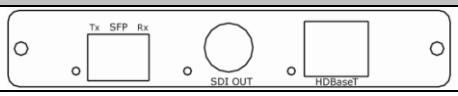
	720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
DP Input (Standard)	
Number of Inputs	1
Connector	Standard
Supported Resolution	Support resolution: WQXGA + (1920 x 1200), and color depth: 30/36 bit (each primary 10/12 bit)
Supported Bandwidth	10.8Gb/s
Format Standard	DP1.1
HDMI Input (Standard)	
Number of Inputs	1
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Embedded Audio Channels	Choose one from the two inputs
Format Standard	HDMI 1.3
Genlock Loop Out (Standard)	
Number of Loop Out	1
Connector	Standard BNC Socket
Supported Standards	480i I 576i I 1080i59.94 I 1080i50 I 720p50 I 720p59.94 I 1080p50 I 1080p59.94 I 1080p60 I 1080psf23.98 I 1080psf24
3G-SDI Loop Out (Standard)	
Number of Loop Out	2
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1) I 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF)

	SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
HDMI Loop Out (Standard)	
Number of Loop Out	1
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Embedded Audio Channels	Choose one from the two inputs
Format Standard	HDMI 1.3
DVI Loop Out (Standard)	
Number of Loop Out	1
Connector	Standard DVI-D socket
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
HDMI Output (Standard)	
Number of Outputs	1
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 1280×720@23.98 I 1280×720@24 I 1280×720@25 I 1280×720@29.97 I 1280×720@30 I 1920×1080@23.98 I 1920×1080@24 I 1920×1080@25 I 1920×1080@29.97 I 1920×1080@30. VESA: 800×600@60 I 1024×768@60 I 1024×768@75 I 1024×768@85 I 1280×720@60 I 1280×768@60 I 1280×800@60 I 1280×1024@60 I 1360×768@60 I 1366×768@60 I 1400×1050@60 I 1440×900@60 I

	1600×1200@60 I 1680×1050@60 I 1920×1080@60 I 1920×1200@60 I 2048×1152@60 I 2560×816@60
Format Standard	HDMI 1.3
VGA Output (Standard)	
Number of Outputs	1
Connector	Standard DB15 Socket
Supported Resolution	VESA: 800×600@60 I 1024×768@60 I 1024×768@75 I 1024×768@85 I 1280×720@60 I 1280×768@60 I 1280×800@60 I 1280×1024@60 I 1360×768@60 I 1366×768@60 I 1400×1050@60 I 1440×900@60 I 1600×1200@60 I 1680×1050@60 I 1920×1080@60 I 1920×1200@60 I 2048×1152@60 I 2560×816@60
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
DVI Output (Standard)	
Number of Outputs	1
Connector	Standard DVI-D Socket
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 1280×720@23.98 I 1280×720@24 I 1280×720@25 I 1280×720@29.97 I 1280×720@30 I 1920×1080@23.98 I 1920×1080@24 I 1920×1080@25 I 1920×1080@29.97 I 1920×1080@30. VESA: 800×600@60 I 1024×768@60 I 1024×768@75 I 1024×768@85 I 1280×720@60 I 1280×768@60 I 1280×800@60 I 1280×1024@60 I 1360×768@60 I 1366×768@60 I 1400×1050@60 I 1440×900@60 I 1600×1200@60 I 1680×1050@60 I 1920×1080@60 I 1920×1200@60 I 2048×1152@60 I 2560×816@60
VGA Input (VGA Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
Number of Inputs	2
Connector	Standard DB15 Socket
Supported Standard	VGA-UXGA
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V

Supported Resolution	VGA-UXGA (800 × 600@60 I 1024 × 768@60 I 1280 × 1024@60 I 1440×900@60 I 1600×1200@60)
DVI Input (DVI Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
Number of Inputs	2
Connector	Standard DVI-D socket
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
3G-SDI Input (SDI Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
3G-SDI Input	
Number of Inputs	2
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1) I 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
3G-SDI Loop Out	
Number of Loop Out	2
Connector	BNC

Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1) I 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
HDMI Input (HDMI Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
Number of Inputs	2
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Embedded Audio Channels	Choose one from the two inputs
Format Standard	HDMI 1.3
USB Input (USB Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
Number of Inputs	2
Connector	Standard USB port
Supported Standard	Support general Image and video formats
CVBS Input (CVBS Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
Number of Inputs	2

Supported Standard	PAL/NTSC
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Multiplex	480i,576i
HDMI_DP_4K2K_IN Optional Module	
Interface Appearance	
Board Size	93.8(L)×17(W)（mm）
DP 1.2 Input	
Number of Inputs	1
Connector	Standard
Supported Resolution	Support resolution: WQXGA + (1920 x 1200), and color depth: 30/36 bit (each primary 10/12 bit)
Supported Bandwidth	21.6Gb/s
Format Standard	DP 1.2
DP 1.2 Loop Out	
Number of Loop Out	1
Connector	Standard
Supported Resolution	Support resolution: WQXGA + (1920 x 1200), and color depth: 30/36 bit (each primary 10/12 bit)
Supported Bandwidth	21.6Gb/s
Format Standard	DP 1.2
HDMI 1.4 Input	
Number of Inputs	1
Connector	HDMI standard type A interface
Supported Resolution	VESA: 3840×2160×24 I 3840×2160×25 I 3840×2160×30 I 4096×2160×24 SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60, 720p50/59.94/60
Format Standard	HDMI 1.4
F Output Optional Module	
Interface Appearance	
Board Size	114(L)×19.7(W)（mm）
3G-SDI Output	
Number of outputs	1
Connector	BNC interface
Signal level	800mV±10%
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1), 1920×1080/50 (1:1).

	SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
SFP Fiber Output	
Number of outputs	1
Connector	LC interface
Supported Standard	SMPTE standard
10 Gigabit single-mode 10 km optical fiber module	
Wavelength of Light Transmission	1310nm
Transmission Rate	10G bps
Transmission Distance	10km
Transmission	Single mode twin-core
Hot Plug	Support
10 Gigabit multimode 300m optical fiber module	
Wavelength of Light Transmission	1270nm
Transmission Rate	10G bps
Transmission Distance	300km
Transmission	Multimode twin-core
Hot Plug	Support
HDBaseT Output	
Number of outputs	1
Connector	RJ45 Interface
Supported Standard	SMPTE standard
Transmission Rate	10G bps
Transmission Distance	120m
Standard	HDBaseT 1.0
3G-SDI Output (OS2Optional Module)	
Interface Appearance	
Board Size	114(L)×19.7(W)（mm）

Number of Outputs	1
Connector	BNC interface
Signal level	800mV±10%
Supported Standard	SMPTE 425M - 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2：1920×1080/60 (1:1) I 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2：1920×1080/60 (2:1) I 1920×1080/50 (2:1) SMPTE 274M (HD)：1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD)：1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD)：1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
CVBS Output (OC Optional Module)	
Interface Appearance	
Board Size	114(L)×19.7(W)（mm）
Number of Outputs	1
Standard	PAL/NTSC
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75ohm
Function	
Input channel configuration	Support each input channel signal programming configuration
PIP	Support PIP、PBP for any two inputs
Transition effects	Fade in and fade out switching between any two inputs
Extras	
Communication	USB TCP/IP
Power Supply	85-264V IEC-3
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

B. Contact Information

Warranty:

All video products are designed and tested to the highest quality standard and backed by full 3 years parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. RGBlink warranties are only valid to the original purchase/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modification, lighting strikes, abuse(drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair.

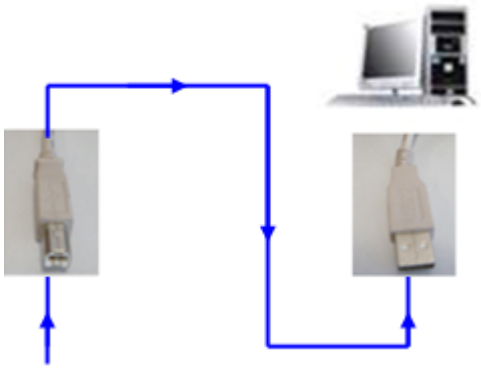
Headquarter: S603~604 Weiye Building Torch Hi-Tech Industrial Development Zone Xiamen, Fujian Province, P.R.C.

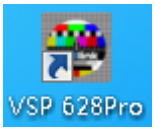
- **Tel:** +86-592-5771197
- **Fax:** +86-592-5771202
- **Customer Hotline:** 4008-592-315
- **Websites:**
  - ~ http://www.rgblink.com
  - ~ http://www.rgblink.cn
- **E-mail:** support@rgblink.com

C. Software Upgrade

Windows Control Program Upgrade Guideline

1. Connect VSP 628PRO to PC via USB cable.

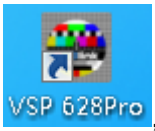


2. Download the windows control program 

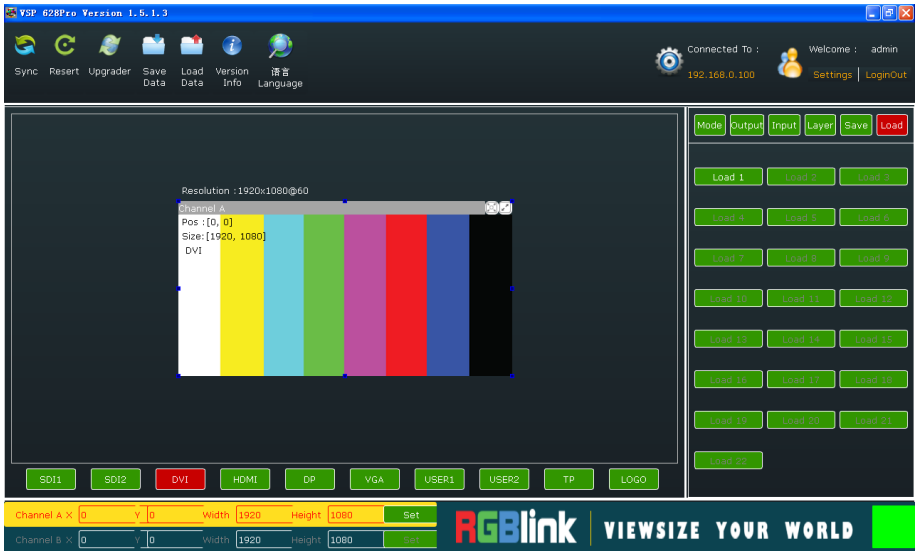
(Please click the link http://www.rgblink.cn/en/products_detail.aspx?id=261 to the VSP 628PRO home page, and click the “Download” option to get the windows control program).

   The name of the upgrade software is VSP628PRO_Packge_XX.bin.

3. Power on VSP 628PRO.

4. Open the windows control program 

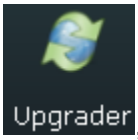
, like below:



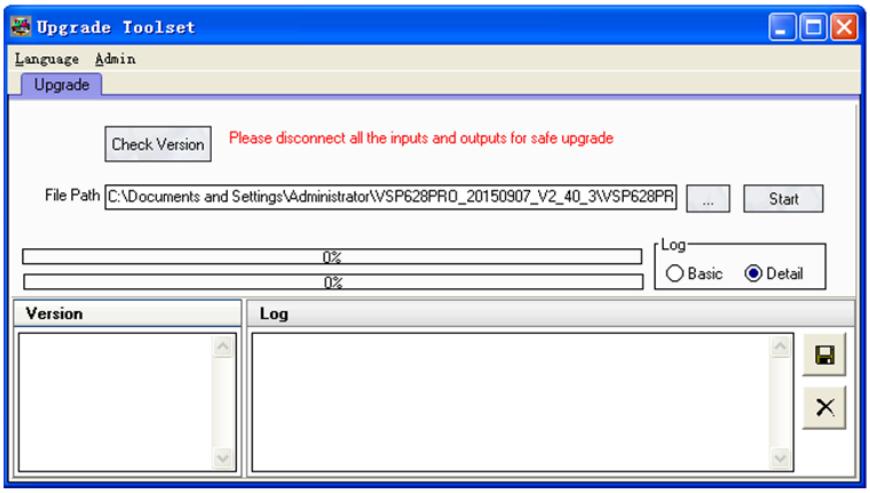
5. Click the Sync icon

, which show the information of the windows control program. The green square in the bottom right means the connection is successful, like this:

, while red is disconnect.

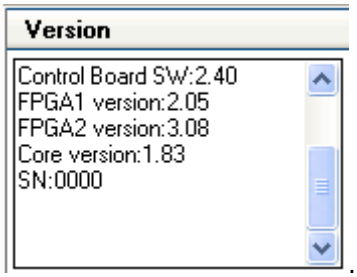
6. Click update icon 

, and open the upgrade toolset, like below:



7. Click check version icon:

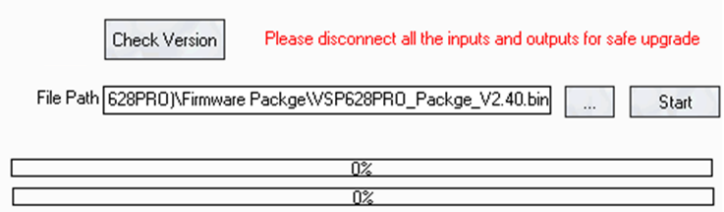
, and check the version information



. (If the Control Board SW version is 2.13 or lower, it needs to upgrade VSP628PRO_EDID_XX.bin)

8. Click the button

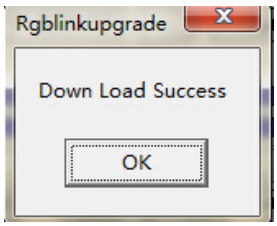
, and choose the upgrade path, get the update file: VSP 628PRO_Packge_Bata_xx.bin ready. Like below:



9. Click start icon

to upgrade.

10. It takes 2~3 minutes to finish update. And a message “Down Load Success”



will pop out if finish.

11. Please re-power the VSP 628PRO after finished update. (Automatically factory reset when re-opening.)

D. WEB SERVER Cross-platform Control Operation Interface

If users use Ipad or Iphone, they can input the website 192.168.0.100 (default) or 192.168.0.231 in Safari browsers to operate. If users need to modify VSP 628PRO IP address, they can input corresponding modified IP address.

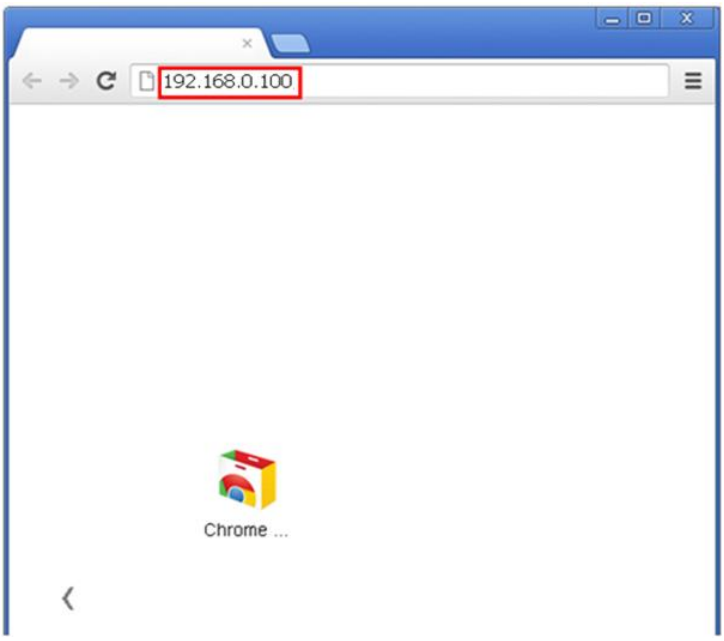
If users use other device, they **need to install webkit kernel browser,** such as: **apple Safari, Google Chrome or Maxthon**. Installation package provides Google Chrome browser (Windows version).

Note: Internet Explorer, Edge and Firefox are not supported.

Now take Google Chrome browser for example, specific steps are as follows:

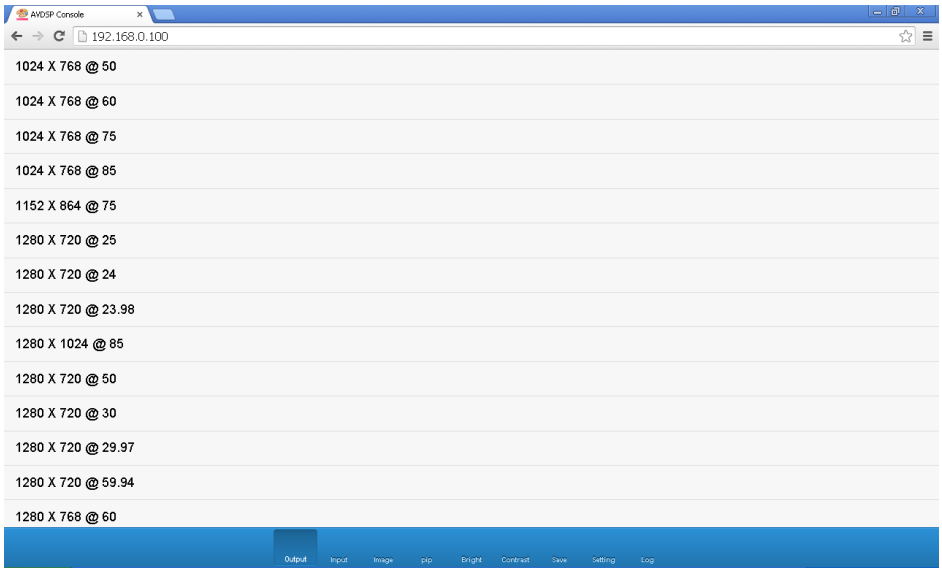
Step 1: click

to run Google Chrome browser, open the webpage and input 192.168.0.100 to operate:



Step 2: Enter the default home page, the system provides 13 kinds of

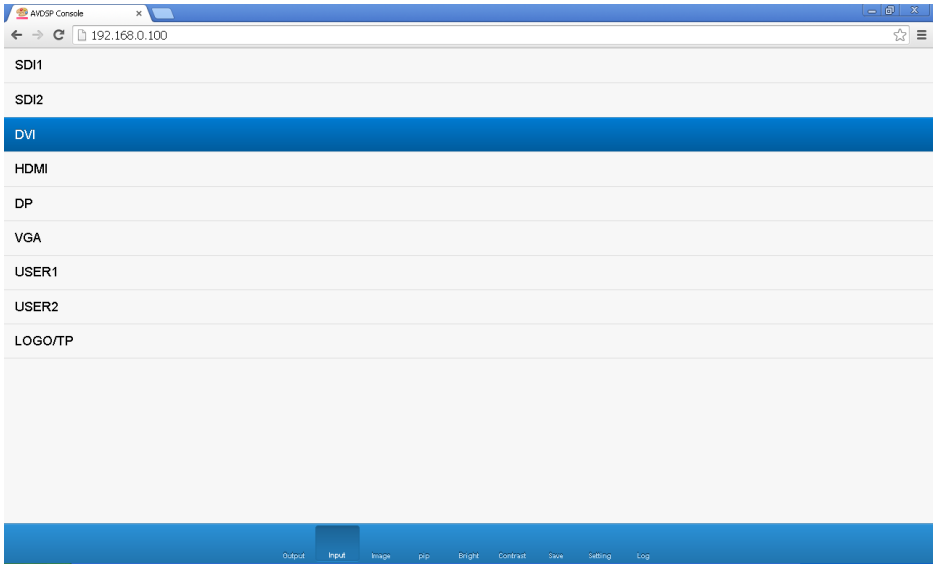
output resolutions for choose, blue stripe means current selected output resolution. Selected, then VSP 628PRO will automatically update the output resolution.



Note

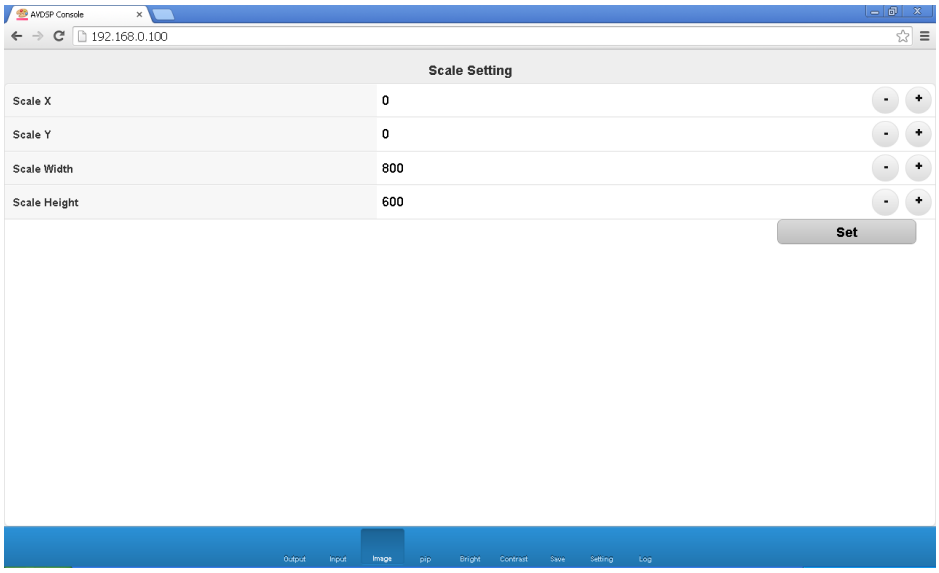
Users can freely switch the icons in title bar to set relevant functions, following will introduce the relevant settings.

Step 3: Select "Input" icon in title bar, user can click the signal source that need, VSP 628PRO will automatically update input signal source.

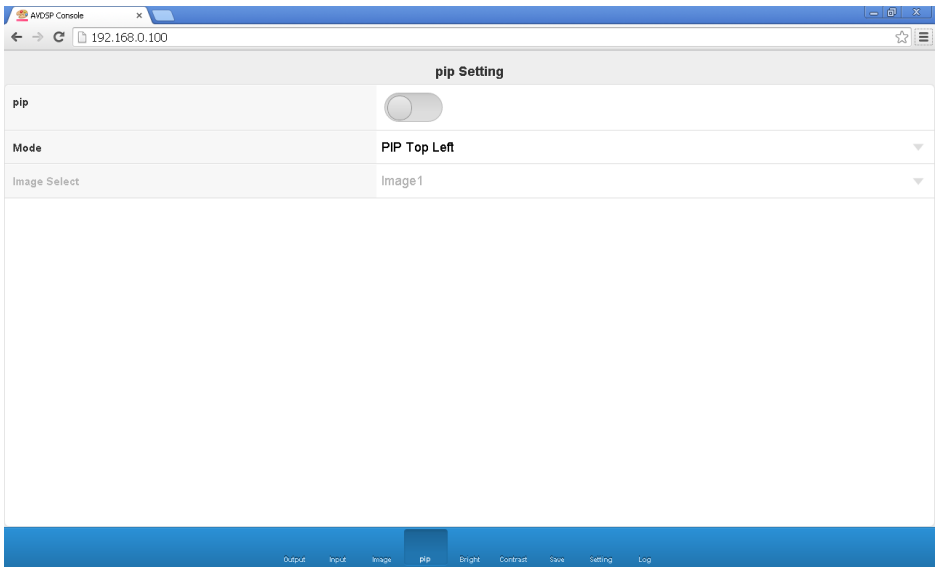


Step 4: Select "Image" icon in title bar to scale the image, user can modify

digital setting parameters and image size and position easily through "-+" icon. Click "Set" after modify the digital, VSP 628PRO image will display the latest Settings.



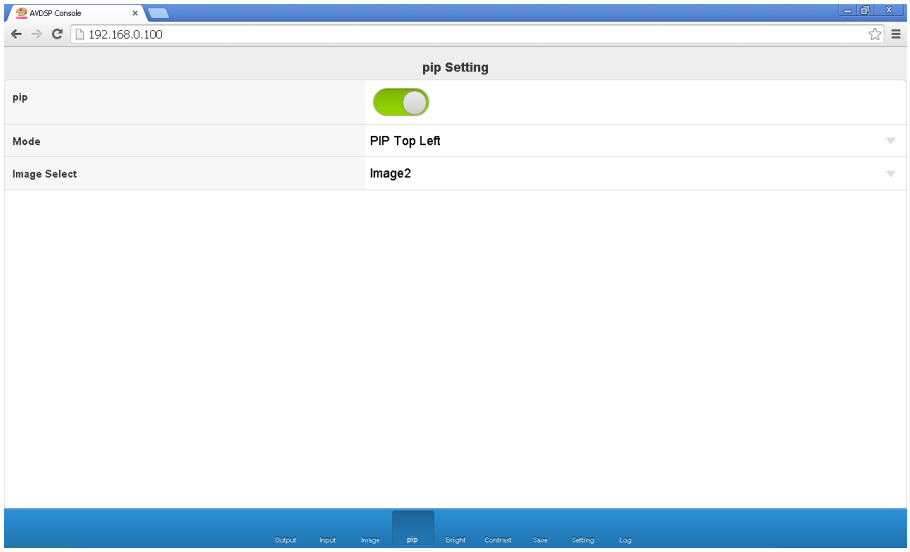
Step 5: Select "PIP" icon in title bar. When the PIP sliding block icon is grey, then it is single channel picture mode, and if image selection is gray, then image 1 is default for single image output image, and can't be chosen.



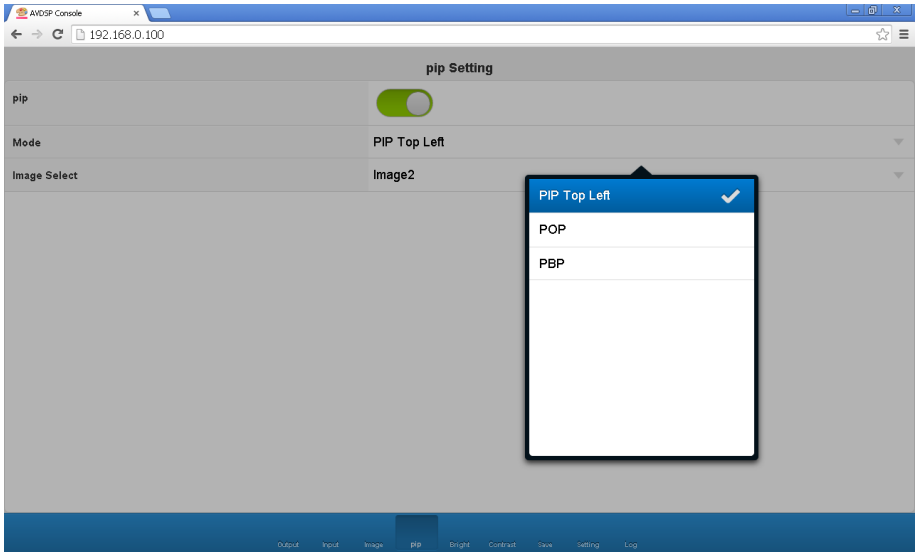
Note

User can preset the image mode that switch the current single picture mode to double-picture mode and the position of the two images in the mode.

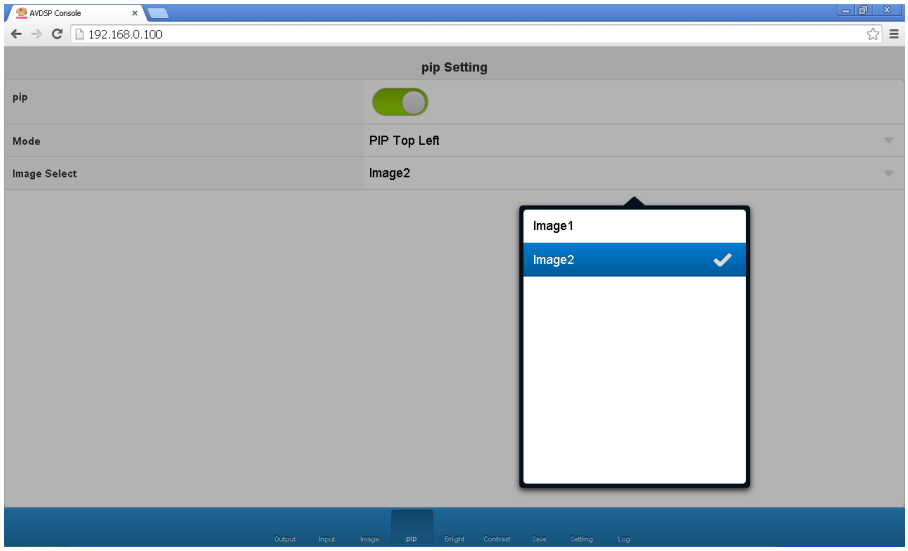
Drag the slider rolling ball, when the slide block is green, pip starts.



Then user can set PIP location, in addition to system default PIP upper left picture, also can choose picture above picture and picture edge picture.



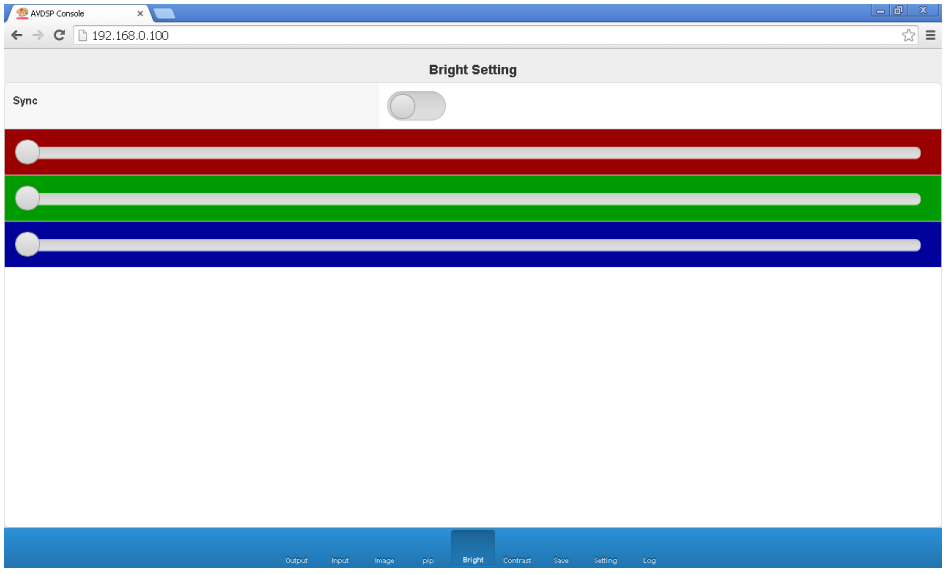
In PIP mode, the default image1 is the main image, image2 for PIP sprite, click the corresponding image when need to edit image1 or image2 , the selected image with blue stripes, tick, as shown below: image2 is selected, all settings will for image 2. For example, you can switch "Input" icon in title bar to choose image 2 input source.



Note

If image1 and image2 with the same input source, then it will display the same picture in PIP.

Step 6: Image brightness setting, it is mainly for output image setting. If "Sync" is grey, you can adjust one color alone, when "Sync" is green, it means it starts, drag one color, and the other two color values will change accordingly to the same value.

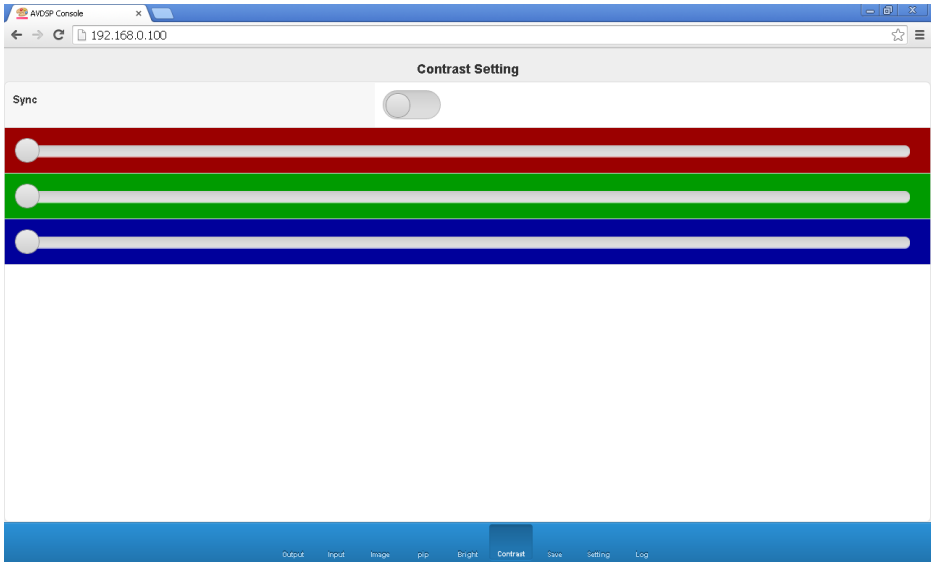


Note

User can adjust setting according to actual condition, the function mainly suitable for the personage that is very processional in image quality. Nonprofessional isn't recommend to the

above operations, if distortion of image quality as of improper operation errors, you can reset to the factory initialization.

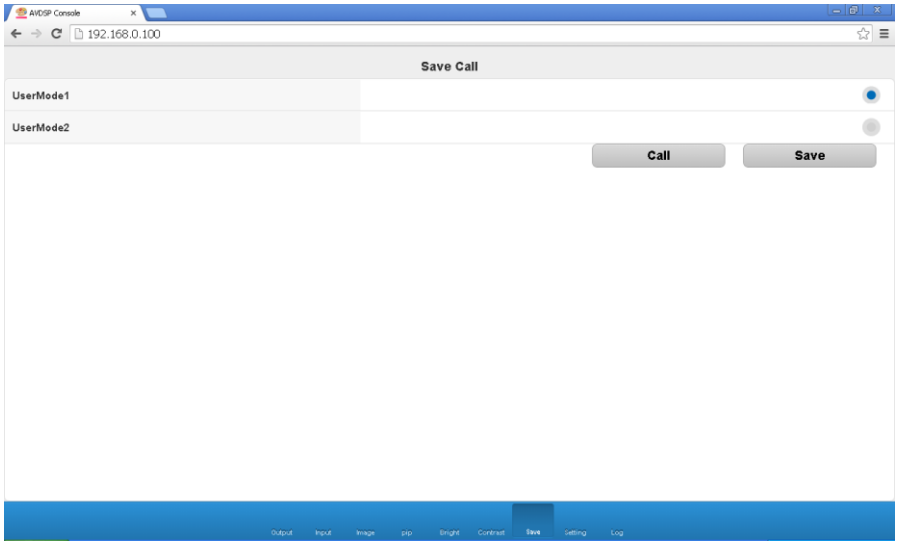
Step 7: Image contrast setting, it is mainly for output image contrast. If "Sync" is grey, you can adjust one color alone, when "Sync" is green, it means it starts, drag one color, and the other two color values will change accordingly to the same value.



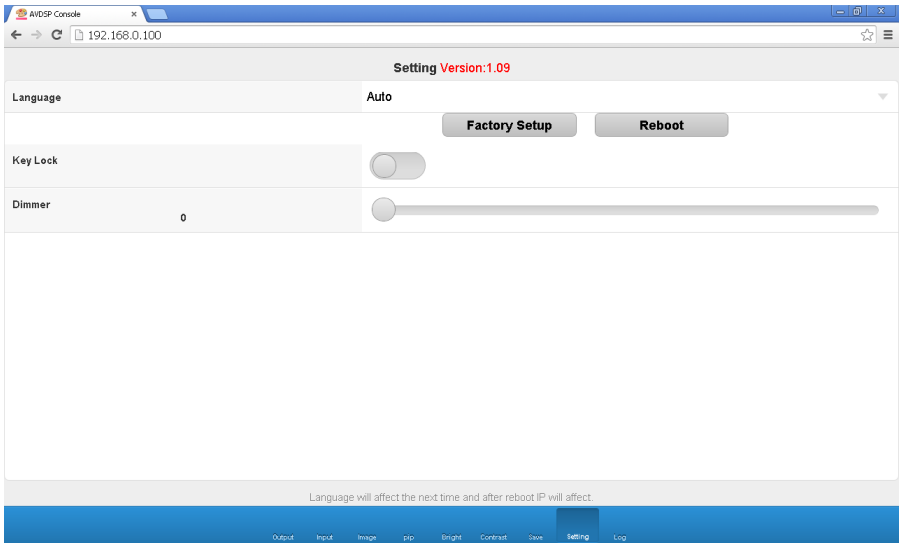
Note

User can adjust setting according to actual condition, the function mainly suitable for the personage that is very processional in image quality. Nonprofessional isn't recommend to the above operations, if distortion of image quality as of improper operation errors, you can reset to the factory initialization.

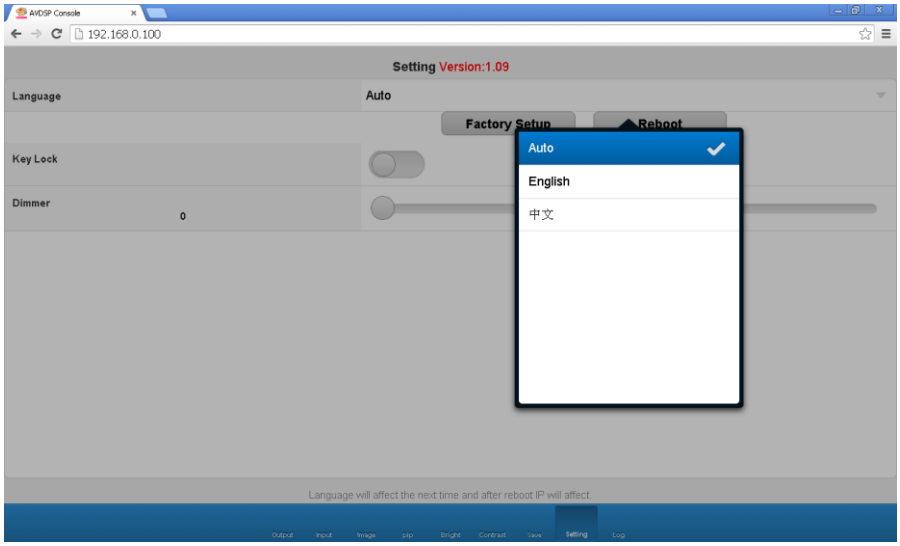
Step 8: Save and Call function. User can save the parameters to UserMode1 and UserMode2, and can also load UserMode1 and UserMode2 that saved before.



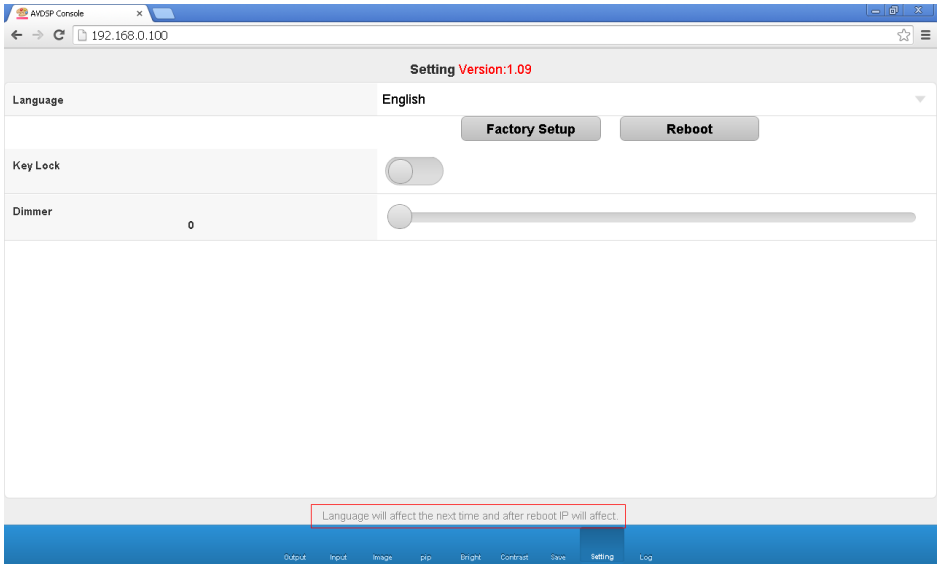
Step 9: Page setting.



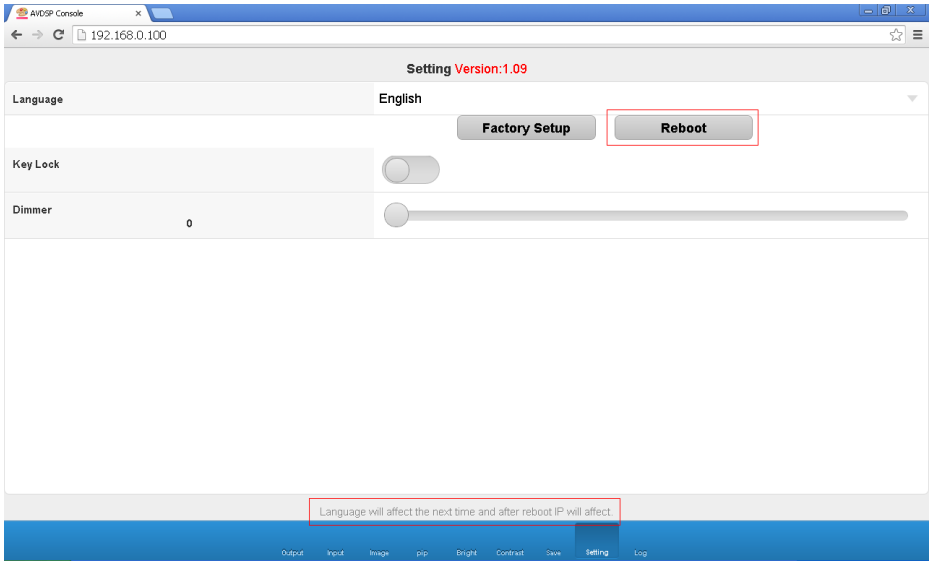
First, choose the language according to user's need. And the default is automatic identification.



Click "Set" after select the language (such as select Chinese), pay attention to system prompt "Language will effect after the next time and after reboot IP will affect" (at green box). Now user need to refresh the page to complete the setting.



If need to modify IP address, user can push MENU->SYSTEM ->Ethernet->IP, it will take effect after restart the device.



Reset: If appear wrong operation, click "Reset" to factory default.

Key Lock: If slide block is gray, it is unlock, and VSP 628PRO keys can normally operate. And if slide block is green, the VSP 628PRO keys locked, and user can't operate any button.

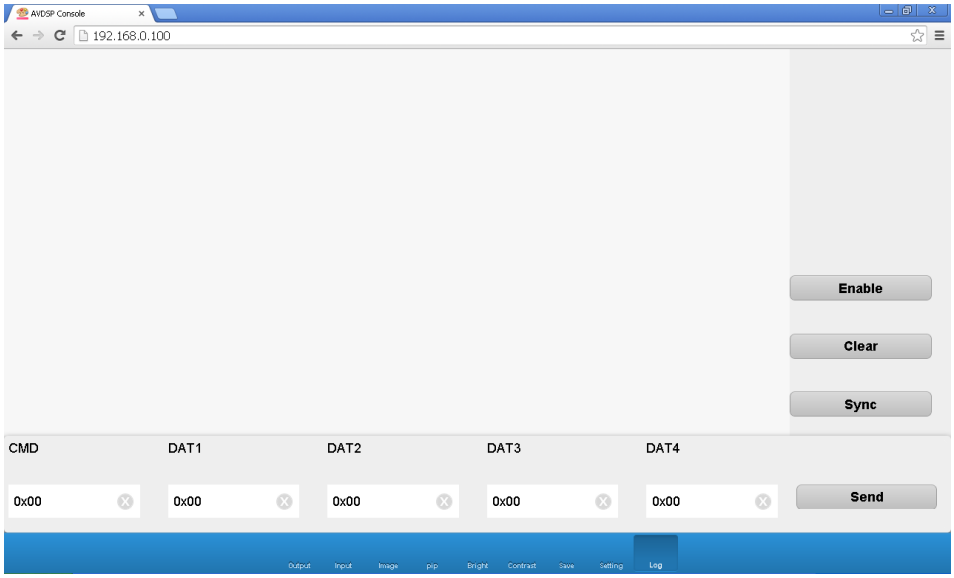
Dimmer: ALPHA transparency regulation. Drag ball to change the

transparency value, transparency value is between 0 ~ 100 levels.

Note

Operation is invalid in PIP mode.

Step 10: Log function is mainly for research and development personnel as debugging use.



E. VSP 628PRO Connect APP Control Operation

1. Download the APP

Click the link http://www.rgblink.cn/en/products_detail.aspx?id=261 to the VSP 628PRO home page, and click the “Download” option to get the Apps links.

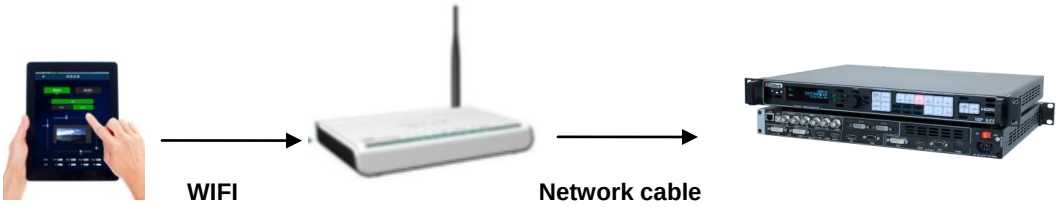
For iOS App, the dedicated link is https://itunes.apple.com/au/artist/rgblink/id958113921.

Install the VSP 628PRO client App on Iphone or Ipad, shown as

. After the installation is completed, the Iphone or Ipad will show the icon

.

2. APP Control Interface Introduction



1. Prepare a router that with wireless internet and DHCP function, connect and set the router by computer before connect to VSP 628PRO, and enable the IP and DHCP function. (For more details about setting, please refer to router’s instruction).
2. Connect the LAN port of router to the LAN port of VSP 628PRO with the network cable.
3. Connect to the router by IOS or Android device, system default IP automatic access, use the web browser to access “192.168.0.100”, the default IP address of VSP 628PRO, if the IP address is changed, please enter the changed IP address. (Set path: MENU->System->Ethernet->IP), user can wirelessly control VSP 628PRO after loading.

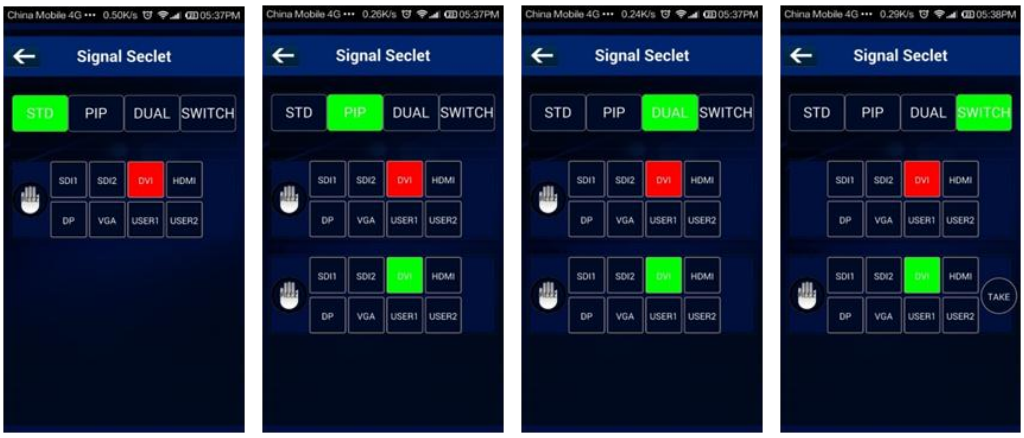
(1) Make sure the device is connected to the router, power on, after the device is stable,

turn on the mobile phone or IPAD APP to search and connect the device, as follows:

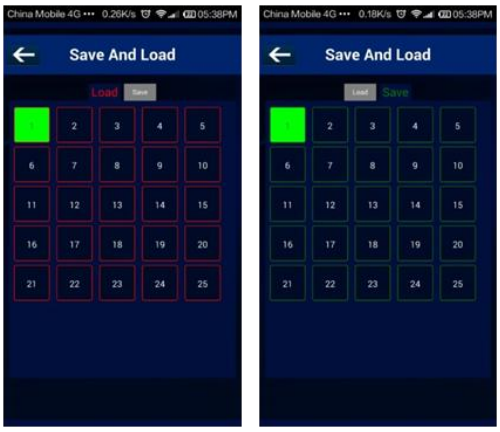
⑵ There are 2 device options after connect the device, DEMO is the presentation template that comes with software, choose any one of them, as follows:

⑶ After connection, it enters to the processor manager interface, as follows:

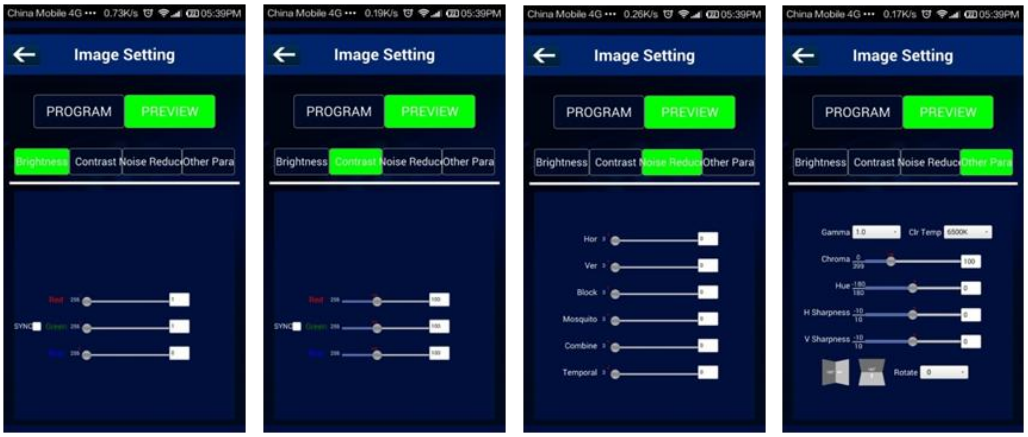
⑷ Click <Signal Select>, it supports 4 different modes, as follows:



(5) Click <Save And Load>, it supports 22 kinds of save modes, as follows:

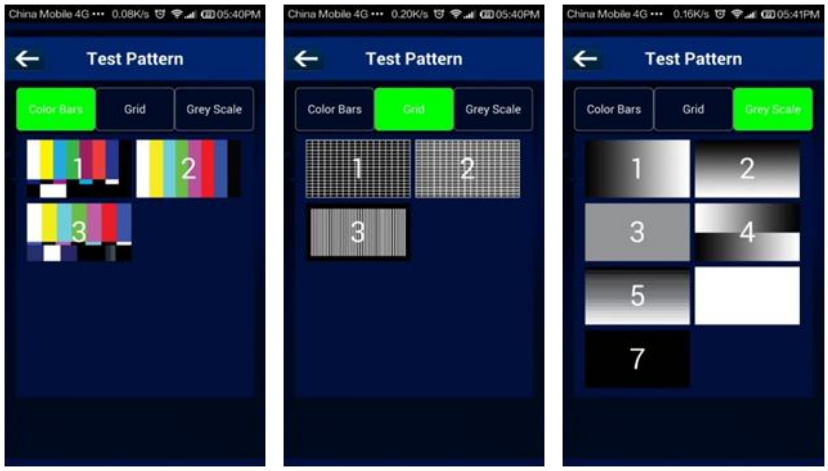


(6) Click <Image Setting>, user can adjust the parameters in preview mode, as follows:



(7) Click <Mask And Scale>, user can mask and scale the image, as follows:

⑻ Click <Test Pattern>, there are 13 kinds of test patterns, as follows:



⑼ Click <Parameter Setting>, user can adjust the output resolution, as follows:

⑽ Click <Information>, user can view the device mode, serial number, IP address and module versions. User can also click “Factory Reset” to reset to its factory settings.

China Mobile 4G 0.17K/s 05:41PM
Information
Device: VSP 628PRO
Serial Number: ffff
Ip Address: 192.168.0.100
FPGA1: 2.5
FPGA2: 3.1
Core: 1.73
Comm: 2.15
Factory Reset

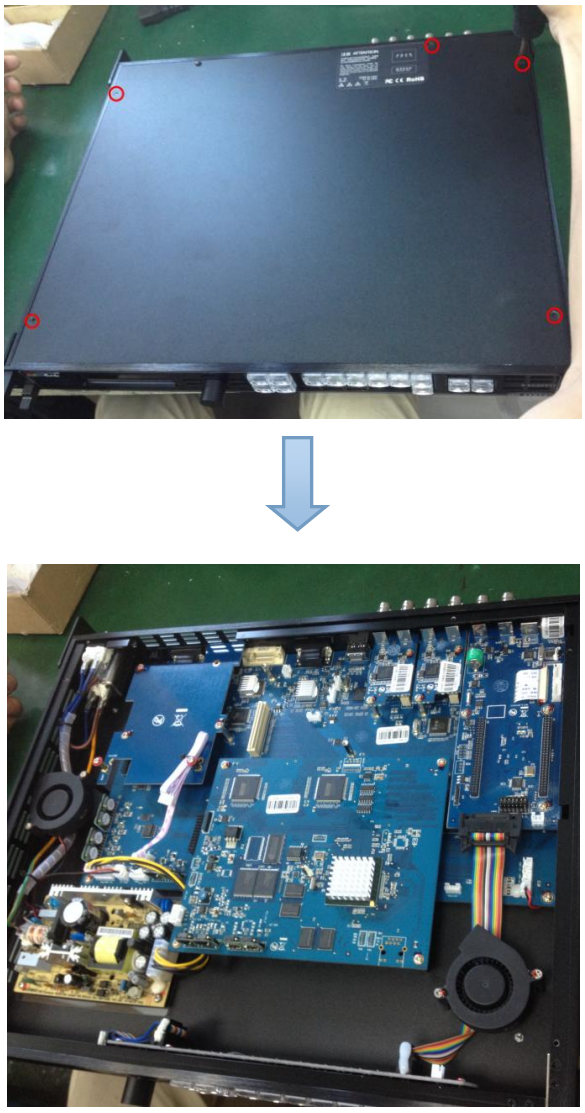
F. Optional Module Installation and Replacement Instruction

VSP 5162PRO, VSP 5360 and VSP 628PRO are based on module based structure, user can install or replace the optional module according to actual need. The installation steps of VSP 5162PRO, VSP 5360 and VSP 628PRO are the same. Here we take VSP 628PRO for example, specific steps are as follows:

Install the Optional Module

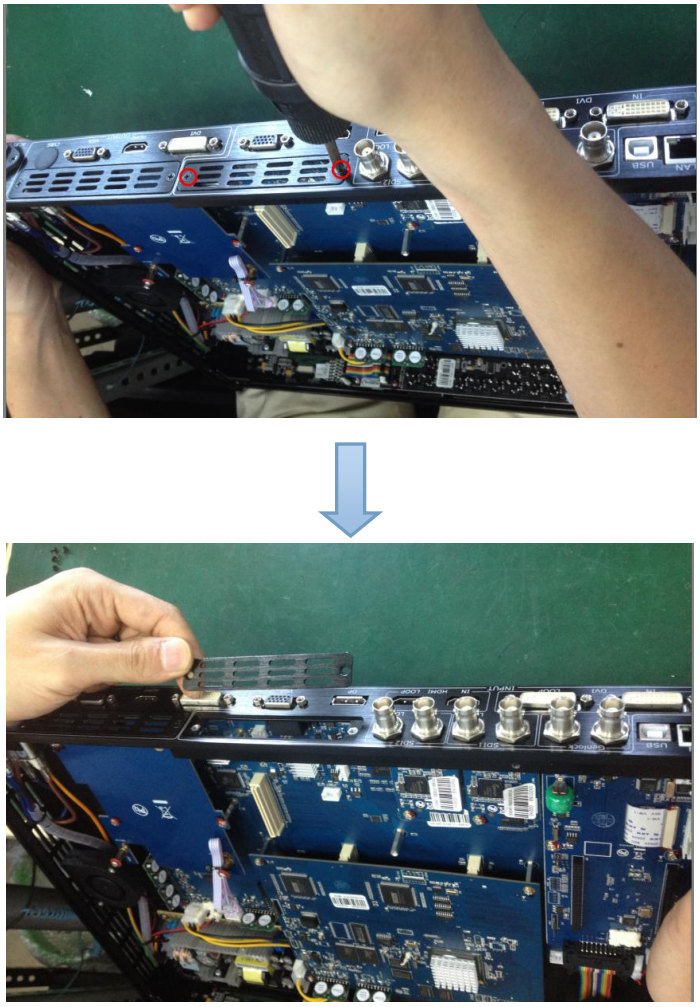
1. Disconnect the power and all the signal and control cables.

2. Unscrew the 5 fixed screws on the top panel and remove the top panel (Figure 1):



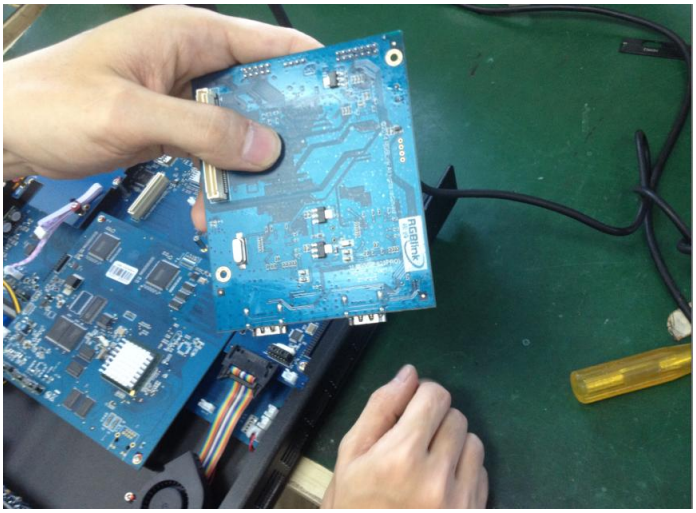
(Figure 1)

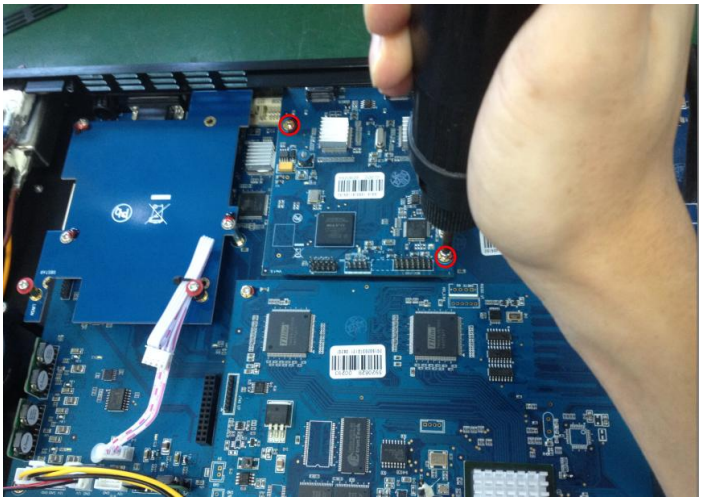
3. Unscrew the 2 fixed screws on input optional module slot, and pull out the input block (Figure 2):



(Figure 2)

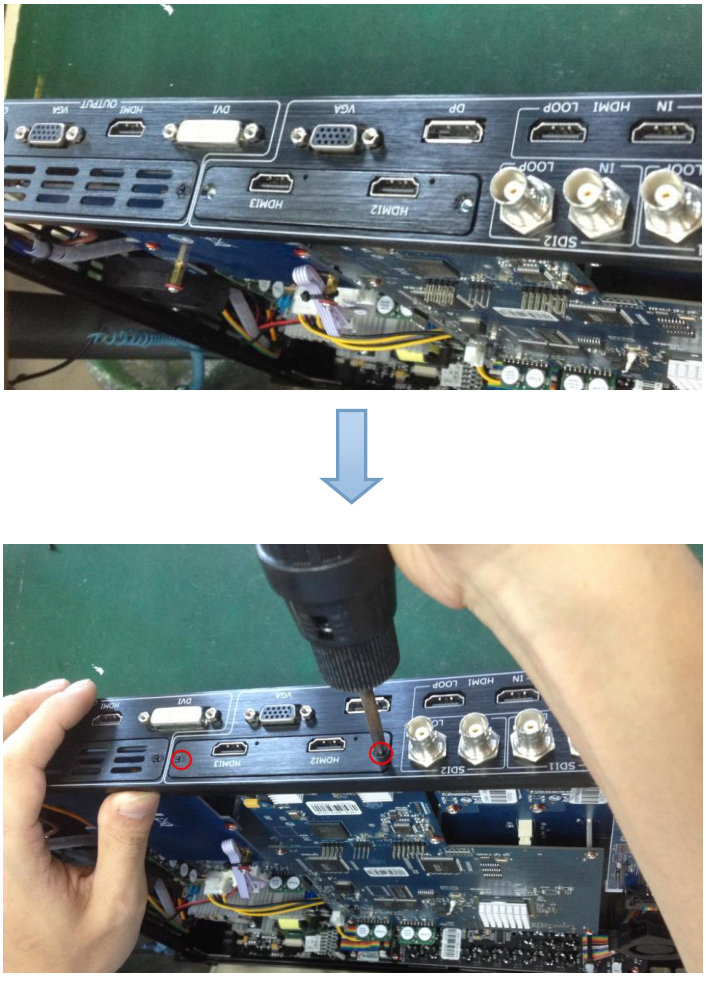
4. Push the input module into the input module slot, and fix it with 2 fixed screws (Figure 3):





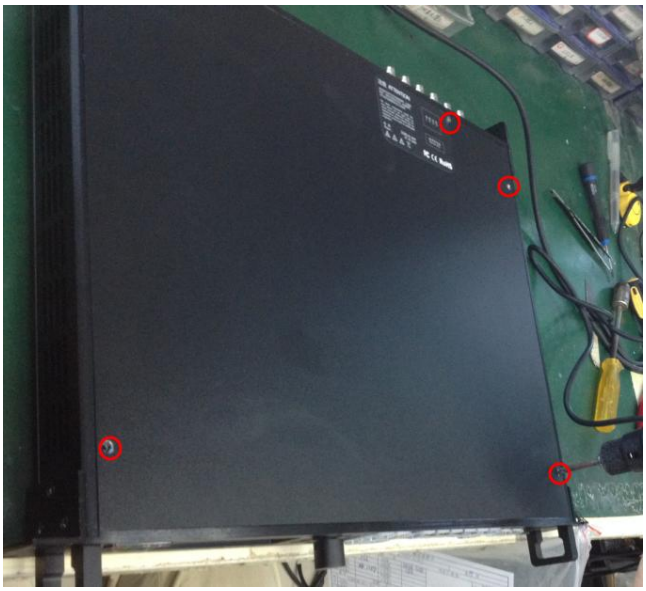
(Figure 3)

5. Embed the input module block in the input module slot, and fix it with 2 fixed screws (Figure 4):



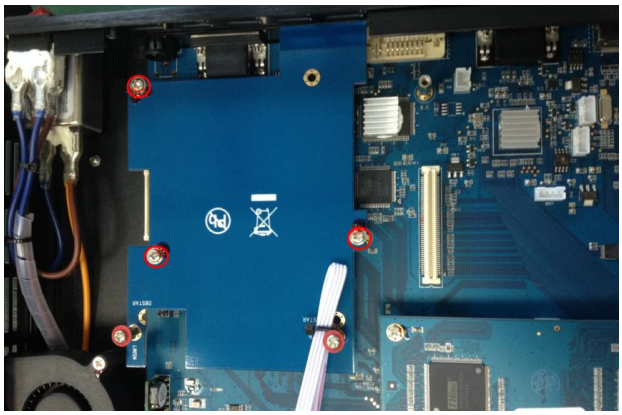
(Figure 4)

6. Assemble the top panel, and fix it with 5 fixed screws that removed in step 2, then optional module installation is finished (Figure 5):



(Figure 5)

Note: Above instructions are only for input optional module. For VSP 628PRO, if user would install the output optional module, first, take apart the top panel, and unscrew the 3 fixed screws on sending card board to remove it (Figure 6).



(Figure 6)

Then unscrew the 2 fixed screws on output optional module, and pull out the output module block (Figure 7).

(Figure 7)

Finally, push the output module into the output module slot, the install steps are the same as step 4 to step 6 in “**Install the Optional Module**” part.

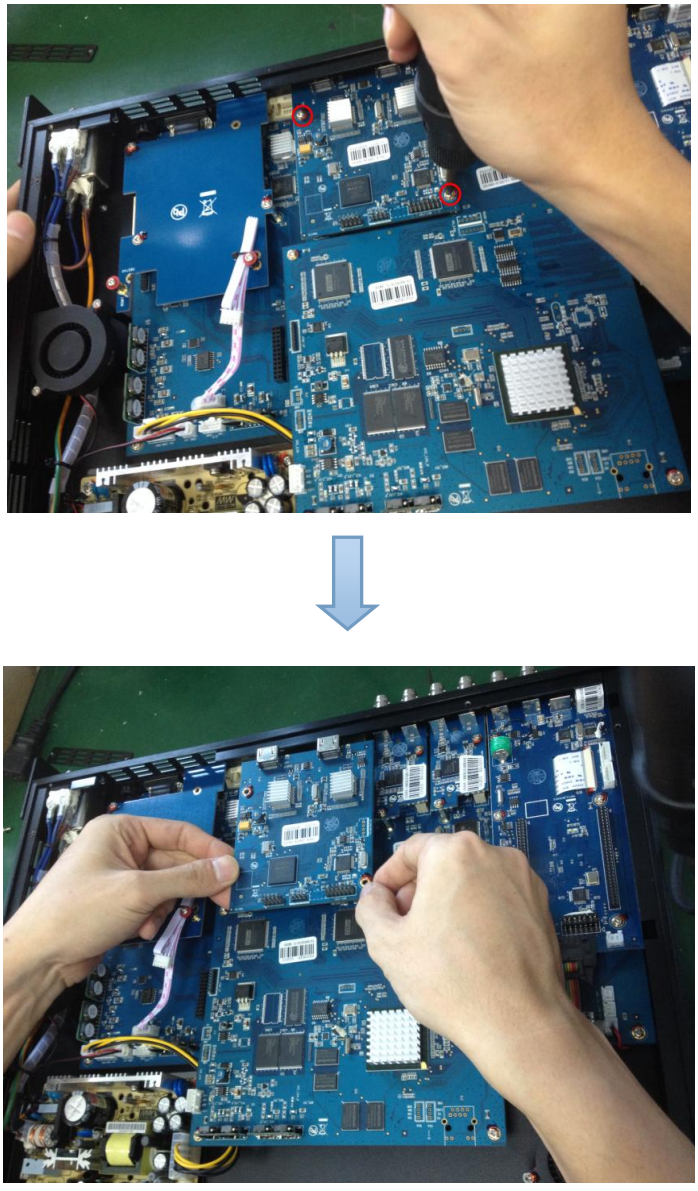
Note: There is the case that some customers connect the power cord of the sending card to the F optional module, shown as Figure 8. This is not allowed to happen, or the F optional module will be damaged.

(Figure 8)

Replace the Optional Module

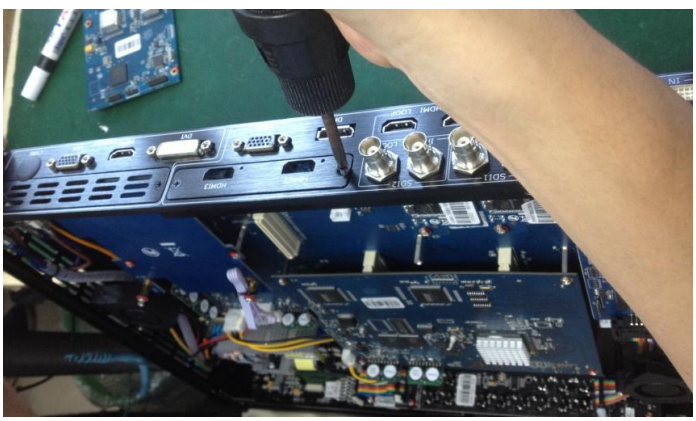
The install steps for optional module replacement are the same as above, but the following need to note:

1. Take apart the top panel, and unscrew the 2 fixed screws on input optional module to remove it (Figure 9).



(Figure 9)

2. Unscrew the 2 fixed screws on input optional module, and pull out the input module block (Figure 10).



(Figure 10)

3. Push the input module into the input module slot, the install steps are the same as step 4 to step 6 in “**Install the Optional Module**” part.

Note: The install steps for output optional module replacement are the same as above.